APPENDIX 3A

POSTCLOSURE DEVELOPMENT PERFORMANCE STANDARDS

EXCERPTS FROM WCCSL CLOSURE & POSTCLOSURE PLAN

(From pending 2002 revisions to WCCSL PCP pages 170-171)

It is acknowledged by West Contra Costa Sanitary Landfill, Inc. (site Operator) and West County Landfill, Inc. (WCL, Inc.) the site owner that the Class II site use during the postclosure maintenance period will be in accordance with the requirements of Title 27 Section 21190. Sections 21190(a) through (f) are reprinted below:

21190 CIWMB – Postclosure Land Use. (T14:§17796)

(a) Proposed postclosure land uses shall be designed and maintained to:

(1) protect public health and safety and prevent damage to structures, roads, utilities and gas monitoring and control systems;

(2) prevent public contact with waste, landfill gas and leachate; and

(3) prevent landfill gas explosions

(b) The site design shall consider one or more proposed uses of the site toward which the operator will direct its efforts, or shall show development as open space, graded to harmonize with the setting and landscaped with native shrubbery or low maintenance ground cover.

(c) All proposed postclosure land uses, other than non-irrigated open space, on sites implementing closure or on closed sites shall be submitted to the EA, RWQCB, local air district and local land use agency. The EA shall review and approve proposed postclosure land uses if the project involves structures within 1,000 feet of the disposal area, structures on top of waste, modification of the low permeability layer, or irrigation over waste.

(d) Construction on the site shall maintain the integrity of the final cover, drainage and erosion control systems, and gas monitoring and control systems. The owner or operator shall demonstrate to the satisfaction of the EA that the activities will not pose a threat to public health and safety and the environment. Any proposed modification or replacement of the low permeability layer of the final cover shall begin upon approval by the EA, and the RWQCB.

(e) Construction of structural improvements on top of landfilled areas during the postclosure period shall meet the following conditions:

(1) automatic methane gas sensors, designed to trigger an audible alarm when methane concentrations are detected, shall be installed in all buildings;

(2) enclosed basement construction is prohibited;

(3) buildings shall be constructed to mitigate the effects of gas accumulation, which may include an active gas collection or passive vent systems;

(4) buildings and utilities shall be constructed to mitigate the effects of differential settlement. All utility connections shall be designed with flexible connections and utility collars;

(5) utilities shall not be installed in or below any low permeability layer of final cover;

(6) pilings shall not be installed in or through any bottom liner unless approved by the RWQCB;

(7) if pilings are installed in or through the low permeability layer of final cover, then the low permeability layer must be replaced or repaired; and

(8) periodic methane gas monitoring shall be conducted inside all buildings and underground utilities in accordance with §20933 of Article 6, of Subchapter 4 of this Chapter.

(f) The EA may require that an additional soil layer or building pad be placed on the final cover prior to construction to protect the integrity and function of the various layers of final cover.

(From pending 2002 revisions to WCCSL PCP pages 182-188)

Postclosure Development Performance Standards

To guide the planning of future site uses, performance standards have been developed for the WCCSL that embrace the intent of Title 27 Sections 21190 (a) through (f). The following performance standards shall be considered for each prospective use:

- Final Cover inspection and maintenance – The final cover underlying the zone to be occupied by the subject land use will be inspected annually under the landfill postclosure

monitoring. At the time the land use is proposed and approved, specific potential impacts to the landfill cap will be listed and specific monitoring activities or land use development construction inspection and observations protocols will be developed. After construction is completed, as-built drawings will be prepared and filed as part of the postclosure plan background details. No subsequent construction or grading that will penetrate the cap will be allowed without prior approval. Annual inspections shall include observations to detect any non-approved site modifications.

- Landfill Grading and Drainage System inspection and maintenance – Within the zone to be occupied by the land use, the annual landfill monitoring program will include observation of the final grading and drainage pattern within the zone. The development plans will be required to evaluate the potential for occurrence of settlement of the landfill surface. The development plans must accommodate the anticipated settlement. Any regrading shall be approved by the WCCSL Site Engineer. Areas of differential settlement that interfere with the planned drainage concept will be identified and scheduled for regrading.

- Slope Protection and Vegetation inspection and maintenance – The land use development will be evaluated to determine if special slope protection is required. The annual landfill monitoring program will observe the condition of the slope protection devices and installations and the status of planted erosion control vegetation. The activities associated with the land use will be reviewed to determine if such activities are interfering with the slope protection or if the vegetation growth is being impaired. Any areas requiring erosion correction or replanting will be identified and scheduled.

- Leachate Control and Treatment System operation, inspection and maintenance – At the time the land use is proposed the potential use of water will be estimated by the developer. The control of the water will be evaluated prior to approval of the development. The land use operator annually shall report the amount of water utilized to the WCCSL Site Engineer. Annually the postclosure land use will be evaluated to assure that water usage, drainage or disposal is not penetrating the landfill cap or is causing leachate generation.

- Gas Control System inspection and maintenance – Within the zone occupied by the land use, landfill gas monitoring will be established consistent with the development. At the time the land use is proposed and approved, the landfill gas monitoring details will be ascertained and implemented during construction of the development. Landfill gas migration controls also will be planned and built into the development as deemed necessary. The monitoring will be included in the standard WCCSL landfill gas monitoring program for on-site structures.

- Ground Water Monitoring Network inspection and maintenance – Prior to approval, all proposed land use developments will be reviewed to determine none of the ground water monitoring wells will be damaged by the development construction or operation activities.

At the time any new prospective use is proposed more details must be provided as part of processing the City and County road grading permits, park development plans, and building permits. Such details cannot be provided now due to the preliminary nature of the possible uses. At this stage of the final landfill development process, performance standards and project controls such as listed above are reasonable representative project development control measures to be applied. These center on minimizing water infiltration, maintaining the drainage patterns and preserving the cap integrity.

Note that all finally selected uses for the closed landfill shall be approved by all applicable agencies, most probably involving the City of Richmond or Contra Costa County land use control agencies, the Local Enforcement Agency, California Integrated Waste Management Board, and Regional Water Quality Control Board. Possibly the Bay Conservation and Development Commission and the Bay Area Air Quality Management District also may have jurisdiction over the developments.

The costs of special development details will be borne by the site users. This would apply to the IRRF operator and the greenhouse/nursery industry.

The CIWMB has indicated concern regarding certain financial responsibilities that might be complicated by the postclosure resource recovery operations. Upon further review it appears the attention centers upon reestablishment of approved postclosure control and monitoring measures if a postclosure land use was to be terminated. For example, if the West County composting program was later shifted to another location away from the WCCSL property, what conditions would remain after the composting program stops at the WCCSL? It is WCCSL's intent that the program operator will be required through conditions of the site lease to return the property to meet the required closure conditions. The enhanced depth soil buffer layer could be left in place if the operator provided correct drainage grading. Also, the operator would be required to revegetate the regraded surface. The lease agreement would stipulate that a portion of the lease payment would be placed in a reserve account to be used to pay for the costs of grading and reseeding.

Water Related to Postclosure Land Use

The RWQCB staff members have asked for a description and quantification of water entering, leaving and remaining on-site related to postclosure land use.

The following are applicable to the water on the landfill:

- Water applied to compost for the composting process
- Water applied for dust control
- Water applied in nursery growing areas (net of plant evapotranspiration)
- Precipitation
- Drainage runoff
- Evaporative losses from non-vegetated areas
- Vegetative plants evapotranspiration

The important factor common to the above water occurrences is the net loss of water due to the Northern California climatic conditions.

The nursery growing areas may have the highest amount of applied water. Until the operations are more specifically planned, it is not possible to quantify the amount of water involved. Prior to the permitting of such a land use, specific water usage information and penetration prevention measures will be defined. The development permits and the lease restrictions will enact such controls.

The compost area would have the next highest amount of applied water. Water is added to compostable materials during the dry weather months to maintain the composting process. Water would also be used for dust control within the area. The compost area water would be applied stringently to allow vehicles and tractors to maneuver across the site. The site is sloped for proper drainage and excessive wet conditions would hinder vehicle movement. The compost windrows are to be shifted side to side during the composting operation on a weekly or more frequent basis. Hence, areas under the piles would be exposed and subjected to sun and wind drying weekly resulting in control over deep moisture penetration.

As described in Subsection 3.1.2, past shallow excavations into the vegetative layer portion of the landfill cap have shown water penetration of only 3 or 4 inches after the wet weather season. The surface soil profile completely dries out due to evaporation during the following dry season. The extra protective cap of 3 feet depth that will underlie the composting area provides 3 times the normal vegetative cap thickness and it is underlain by the standard 4-foot thick final cover landfill cap. Deep infiltration of applied water is not anticipated.

In addition the planned moisture penetration evaluations described in Plan Subsection 3.1.2 will provide more extensive information. One additional leachate prevention measure is the moisture extraction that occurs as the landfill gas is collected from the landfill.

Postclosure Use and Landfill Cap Competence

The staff of the CIWMB in reviewing the postclosure uses of the landfill commented on the need to assure that long-term competence and durability of the landfill cap not be compromised. Questions were raised about the potential of differential settlement occurring along the boundaries of the waste processing areas and the adjacent open space areas.

The differential loading of the various areas was reviewed. The areas of greatest differential loading potential that were studied by WCCSL, Inc. in response to this request are the concrete rubble and finished rock products storage pile areas, the wood waste storage area, the compost maturing piles, the soil reclamation area and the baling area. The table following presents representative comparative loadings for these areas.

As indicated in the cap design in the closure plan for all waste processing areas, additional depth of the uppermost "vegetation" zone layer will be provided that will reduce the effective pressures on the critical cap element—the low permeability clay barrier layer. The areas of greatest potential differential settlement will most likely be the storage locations of the heaviest materials, namely the concrete rubble, finished rock products and the soils. These materials have a bulk density of about 3,000 lbs per CY whereas the piles of raw MSW, wood waste and compost are about 20 percent of those densities. The storage pile of solid waste bales created during the evening shift would exert ground pressures of about 100 psf if the bales are stacked 4 bales high. This is to be compared with the stockpile depth of concrete rubble or finished rock products of 15 feet high which would exert a ground bearing pressure of about 1700 psf. The compacted soil cover is anticipated to have a bearing capacity of 8000 to 10000 psf. Applying a safety factor of 3 gives an allowable range of 2700 to 3000 psf for the landfill surface.

Consideration must be given to the impact on the impermeable clay layer located 4 feet below the top of the thickened landfill cap used in the resource recovery processing areas. Evaluating the possible unit soil pressures within the clay layer, assuming a stockpile of concrete rubble 20 feet deep, the effective loading of the clay layer on a unit basis is approximately 50 psf, substantially less than the 6000 to 8000 psf maximum bearing capacity and the shearing stress is less than the shearing strength of this clay soil layer.

EVALUATION OF MATERIAL STOCKPILE AREAS					
Material	Compost	Wood	Soil	Concrete	Asphalt
Density (lb/CY) (pcf)	500 18.5	400 14.8	2500 92.6	3000 111.1	3000 111.2
Proposed Pile Height (ft)	25	25	20	30	20
Ground Pressure (psf)	463	370	1852	3333	2222
Allowable Ground Pressure (psf)	2700 to 3300				2700 to 3300
Comments	Height is governed by other than soil strength	Height is governed by other than soil strength	Maximum height is approx. 35 feet	Maximum height is approx. 30 feet	Maximum height is approx. 30 feet

From the studies made it is apparent that the only specific stockpile height limits set on the resource recovery operations should be on the concrete rubble and soil processing operations. The above table includes the proposed maximum heights of the stockpiles. If a greater depth of the upper landfill cap layer is provided, piles of additional height could be used as approved by the landfill engineer. The other processing operations are not expected to create spot loading conditions sufficient to create undue differential stresses in the landfill cover. In the case of the wood wastes and composting areas, the loadings will be shifted from place to place over time as the piles are formed and subsequently moved. The weight of equipment such as the rock crusher and wood grinder/shredder do not create any more loading than a D-8 dozer.

APPENDIX 3B

COMPOSTING OPERATIONS PLAN SUMMARY

APPENDIX 3B

COMPOSTING OPERATIONS PLAN SUMMARY FOR THE WEST CONTRA COSTA BULK MATERIALS PROCESSING CENTER

April 2003

PREFACE

It is the goal of integrated resource recovery programs to minimize the amount of compostible materials that are buried in landfills. The specific recycling goal of the West County Landfill Composting Program is to process compostible materials into various grades of compost and also recover other organic materials such as mulch materials or wood chip biofuels.

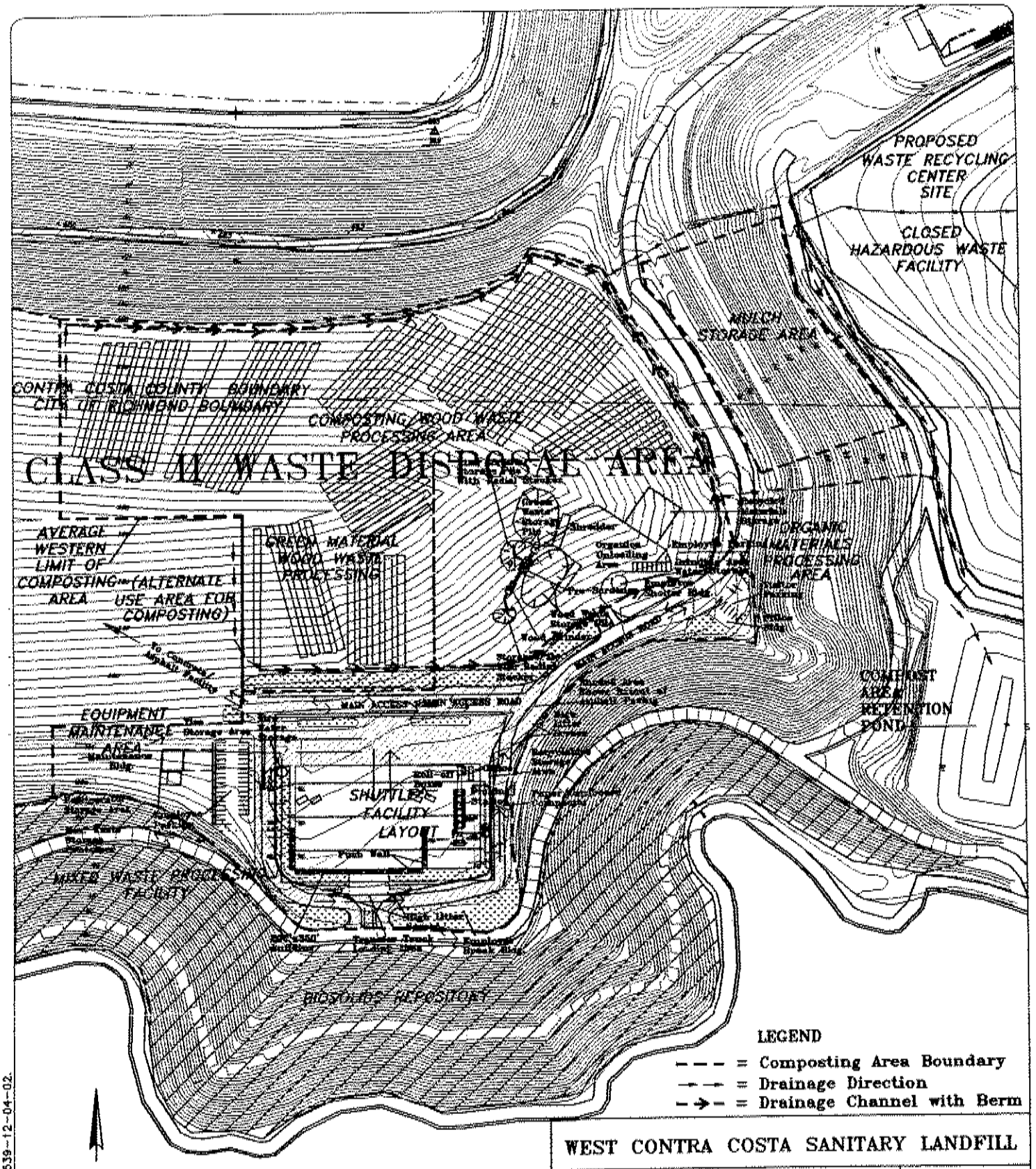
This summary of the compostible material processing program has been developed to document the responsibilities and procedures for segregation, storage and processing of compostible materials at the West Contra Costa Sanitary Landfill (WCCSL) site. This plan covers the aspects of:

1. Acceptance of Compostible Materials
2. Compostible Materials Unloading, Storage and Processing Site
3. Compostible Materials Processing Operations
4. Responsibilities for the Processing Operations
5. Residuals Management
6. Contingencies

1. ACCEPTANCE OF COMPOSTIBLE MATERIALS

The location of the Composting Facility on the West County Landfill is shown on Figure 3B-1.

The Bulk Materials Processing Center (BMPC) will accept compostible materials and have them placed in the organic materials processing area. Customers may deliver compostible materials only during the published hours of public access to the WCCSL site unless special arrangements are made to correlate with the specific schedule of a construction project (e.g. night delivery of finished compost or mulch to avoid freeway congestion).



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WEST CONTRA COSTA SANITARY LANDFILL		
SCALE: GRAPHIC	DRAWING WC-5 RDSI/FDIP Figure 1C	DRAWN BY: ZD
DATE: NOV. 2002		EIR-W99COMPL

FIG. 3B-1 COMPOSTING/WOOD RECOVERY SITE LAYOUT

FDIPS-Figure 3
CPC-Figure 3.2-7

No unloading at the WCCSL will be authorized until payment of the appropriate fees.

The vehicles delivering the compostible materials will be checked in and out of the BMPC site to insure that proper unloading directions are given and to allow the site personnel to know when the vehicle has departed the site. Persons delivering the compostible materials must adhere to the general rules of the WCCSL facility.

Feedstock Material Types

The following are the feedstock materials that will be received:

(a) green and vegetal material - trunks, branches, brush, leaves, grass clippings, weeds, tree trimmings, untreated wood waste or shrubbery cuttings from residential, commercial and public landscape sites, and agricultural operations.

(b) wood wastes - excluding wood products that may contain pentachlorophenol, arsenical, or creosote type preservatives and wood painted with lead based paint.

(c) manures and stable waste - organic stable bedding, straw and manure, none for the purpose of providing "Additives."

(d) plant wastes from the food processing industry including the vegetative and food materials from the fresh food packing and marketing industry, food canning and freezing industry, food marketing industry (wholesale warehouses, produce markets), and residential food wastes.

(e) sewage sludge (biosolids) – digested POTW sludge biosolids or other treatment residues that have been shown by analysis not to contain any constituents at levels which would cause the waste to be a hazardous or designated waste. At a future time a dilute digested wastewater treatment sludge may be used in the composting process. This sludge, if pumped to the composting site from the West County Wastewater District, will be 95% (by weight) moisture. If the sludge is taken by truck directly from the sludge drying ponds, then the moisture content will be lower (approximately 50 to 85 percent moisture).

(f) animal material – material derived from animal products that are for consumption by humans or animals. The source of these products include, but are not limited to, agriculture, food manufacturing and processing industries, restaurants, hospitals, and food distributors. The material is either separated at the point of generation, or separated at a centralized facility that employs methods to minimize contamination. The composting of mammalian flesh, organs, unprocessed hide, blood, bone and marrow is prohibited, except when from the food service industry. Animal material does not include manure.

(g) agricultural material – the products of farms and ranches and items processed from these products, as defined in Division 21, Part 2, Chapter 1, Section 58619 of the Food and Agricultural Code, including any agricultural, horticultural, aquacultural, silvicultural, floricultural, vermicultural, or viticultural product.

(h) mixed solid wastes – paper, cardboard, and wood (excluding wood products that may contain pentachlorophenol, arsenical, or creosote type preservatives and wood painted with lead based paint). No unsorted garbage and trash will be processed.

The following is the definition of "Green Waste" as defined by the CIWMB in Title 14 Section 17852:

> "Green Material" means any plant material that is either separated at the point of generation, or separated at a centralized facility that employs methods to minimize contamination. Green material includes, but is not limited to, yard trimmings, plant wastes from the food processing industry, manure, untreated wood wastes, paper products, and natural fiber products. Green material does not include treated wood waste, mixed demolition or mixed construction debris.
>
> The phrase "plant wastes from the food processing industry" is included in the CIWMB Green Waste definition. WCCSL, Inc. understands that "plant wastes" are another term for "vegetative wastes" or "food wastes" and that the food processing industry includes the fresh food packing and marketing industry, food canning and freezing industry, food marketing industry (wholesale warehouses, produce markets and stands, other wholesale food markets, and retail markets and stores) where the material is source separated, and the food preparation industry (cafeterias, cafes, bakeries and restaurants) where the material is source separated.

As the State regulations are modified in the future and develop specific definitions of the compostibles feedstock, those revisions will modify the listing above.

The record keeping maintained by the BMPC shall include the amount of compostible materials delivered to the processing area, including the source jurisdiction. An approximate record of the amount of compostible materials processed will also be maintained by the BMPC management.

Notice will be given to the construction and demolition contractors working in the service area of the BMPC regarding the benefits of segregating the compostible materials from other debris at their construction job sites. A reduced tipping fee is planned for materials that are free of metal, rubbish, concrete, asphalt pieces, and dirt.

No wood which has been treated with chemicals such as creosote or pentachlorophenol will be accepted.

Compostible materials containing too much concrete, metal, rubbish and dirt will be refused entry to the composting facility.

Specifications for Biosolids to be Composted

The amount of moisture in the processed biosolids will be related to the method of composting. One method of composting the biosolids is to directly apply the wet biosolids from a tank truck to the windrows. This would add both nutrients and moisture to the materials being composted. In the mechanically aerated windrows, liquid compost (2 to 8 percent solids) may be sprayed on the windrows, or injected into the windrows by jetting them from the tank truck. Then the windrow machine would mix the windows.

Dewatered biosolids will usually contain about 20 percent solids. These will be mixed into the shredded materials and then the windrows will be formed, or the biosolids may be added to the stationary batch mixers used for the aerated static pile composting system.

2. COMPOSTIBLE MATERIALS UNLOADING, STORAGE/ AND PROCESSING SITE

The BMPC reserves the right to designate the location of the compostible materials processing site within the WCCSL property in conformance with applicable regulations. The compostible materials storage and processing operation is sited on the central plateau zone of the WCCSL adjacent to the organic materials and concrete/asphalt processing areas. This location is reached from the central access road. Figure 3B-1 shows the location of the Composting Facility on the central plateau of the landfill.

The area required for the composting operation is approximately 10 to 30 acres. This assumes that the shredded materials can be processed via mechanically aerated windrows into useable compost and mulch within 4 months.

The compostible materials processing area is on the closed landfill. To protect the landfill cap from disturbance, an extra depth of soil has been placed over the final cap. A minimum thickness of 3 feet of compacted soil is placed under the unloading area, stockpile areas, the shredding area and the windrow area. Benchmarks have been established to assure that the 3-foot buffer zone is not removed over time as the compostible materials processing continues. Periodically, additional compacted soil will be placed to augment the thickness of the final cap.

The site chosen for the unloading, storage and processing of the compostible materials is conducive to the needs of the operation. The BMPC WCCSL personnel will continually supervise access to the compostible materials area.

The compostible materials storage and processing area will be restricted to persons delivering compostible materials, BMPC operations personnel and compostible materials processing personnel only. It is off-limits to the general public except those delivering loads of compostible materials, or loading finished products.

During each week, the BMPC WCCSL personnel will periodically push the compostible materials in the unloading area using a rubber tired loader to place them into the raw materials stockpiles. The stockpiles generally will be 10 to 20 feet deep.

The site will be periodically regraded by BMPC WCCSL personnel for effective drainage. Drainage grading and evaporation of rainwater from the site is adequate to prevent the accumulation of standing water. Runoff from the compostible materials storage site will be directed to the WCCSL Area A and Area B ponds.

The composting facility may manage a variety of different composting feedstock, including green materials, biosolids, food waste, and waste paper materials. A possible design feature instituted if necessary is a covered receiving structure (or building) intended to manage litter, and also bird and vector attraction. This structure would receive the food waste and paper products, which would be placed into independent bays. The bays would be designed so that incoming trucks can dump directly into them. The biosolids would be received in an adjacent area that may be covered if necessary. The unground green materials would be received in the nearby area where they will be ground following the current site operations.

Several alternative pre-processing methods may be utilized for handling the mixed materials. Inside the structure, the food waste and waste paper may be placed in adjacent stationary batch mixers. The biosolids and shredded green materials will also be added to the mixers to form a blend that meets the feedstock specifications for the compost windrow or aerated static pile systems. An alternative method is to grind the paper materials and food wastes with the green materials. The biosolids may be added to the grinding step too, if the grinder can handle such a mixture without reducing the efficiency of the shredding process. Depending upon the amount and type of food materials received, it may be possible to add them directly to the windrow, and the mechanical aeration process (e.g. the Scarab tractor) may result in adequate grinding of the food materials. This has been a successful practice in the existing composting process due to the small volume of food wastes processed.

Policing of the compostible materials storage and processing site and the regular processing of the accumulated material will prevent environmental problems.

The environmental controls necessary for the compostible materials processing operation include:

- Odor Control
- Drainage Control
- Fire Control
- Dust Control
- Residuals Management
- Operator Noise Protection
- Safety Protection

An Odor Impact Minimization Plan (OIMP) has been prepared for the WCCSL Composting Facility. The OIMP has been developed to provide guidance to on-site personnel in the handling, storage, and removal of compostible materials, in accordance with 14CCR 17863.4. This OIMP will be revised as necessary to reflect any changes in the design or operation. A copy of the revisions will be provided to the enforcement agency within 30 days of the changes. In addition, this OIMP will be reviewed annually to determine if any revisions are necessary.

The main components of the OIMP are as follows:

1. Odor Monitoring Protocol
2. Meteorological Conditions
3. Complaint Response Protocol
4. Design Considerations for Minimizing Odors
5. Operating Procedures for Minimizing Odors

The BMPC is responsible for the drainage and fire control at the compostible materials storage and processing site. The shredding and composting operator is responsible for odor control, dust control and operator noise and safety protection from the equipment utilized.

The water supply for the dust and fire control operations will be furnished by the BMPC WCCSL tank truck used in the composting operation or the shredding contractor if they are a different entity.

3. COMPOSTIBLE MATERIALS PROCESSING OPERATIONS

The composting operations at the WCCSL site are conducted year-round.

The facility operations concept is based upon processing approved separated compostible materials such as green materials (tree prunings, grass clippings, leaves and other plant and vegetative wastes), commercial and industrial wood debris, agricultural wastes, manures and sewage sludge (biosolids). As loads of the organic materials arrive at the WCCSL, the scale attendant will direct the vehicles to be unloaded at the appropriate area. The materials will be temporarily stored in low piles on the unloading area, or covered storage if necessary.

Prior to stockpiling, unwanted materials such as plastic bags or pieces of metal or concrete will be removed. The stockpiled materials will be fed to the shredder to prepare the wastes. The grinding operation will be performed at a rate that will prevent over-accumulation of the raw materials stockpile. Overtime assignments will be made to site personnel as necessary to handle peak loads. A second shredder will be brought to the site to process stumps and/or supplement the WCCSL equipment processing capacity.

After the wastes are shredded, they may be screened to remove wood chips. The fine-sized materials will be placed in the composting windrows. Each windrow will be approximately 7 feet high by 14 feet wide. The length of the piles will depend upon the amount of compostible materials received and the dimensions of the available processing area.

In the full-scale operation, the throughput of compostible and mulch materials is anticipated to be approximately 450 tons per day (TPD7). A Green Waste Composting Facility Permit has been obtained and it is proposed that the upsized composting operation will function under a full composting permit. A Report of Composting Site Information has been prepared in 2002 providing full details of the operation.

The frequency of compostible materials processing generally will be determined by the amount of compostible materials reaching a sufficient quantity to justify the shredding operation. At this time it is anticipated that compostible materials processing operations will occur at near daily frequencies.

The management of the compostible materials processing operation must control environmental problems. These include prevention of odors, fires and dust, and provision of proper drainage.

The BMPC WCCSL personnel will maintain the plowed or graded firebreaks and the drainage facilities surrounding the compostible materials storage pile, the shredded materials storage pile and the processing site (windrow area).

The BMPC WCCSL site Supervisor will be the contact person. The supervision of the processing operations and equipment is also the responsibility of the Site Supervisor and also the Processing Contractors foreman when an outside processing service is used. The operators are to be trained to work safely. Emergency arrangements (e.g., in the case of operator injury) have been established with BMPC Management.

The initial compostible materials processing operations include shredding, conveyors and screening equipment. The equipment to be used will be suitable for the compostible materials processing operation. The equipment includes a loader to move the compost and load the processed materials into transport trailers. The shredding equipment processes about 70 tons per hour. The hours of processing operation currently are between 7:00 a.m. and 5:00 p.m. seven days a week, or as allowed by the site permits.

The processing operation involves the following steps:

- After removal of unwanted items, the compostible materials will be pushed into the stockpile immediately adjacent to the area where the shredder is positioned.
- The materials will be reduced in size by shredding
- The shredded material will be placed into an adjacent stockpile.
- The shredded material will be placed in windrows and turned at the appropriate intervals to produce compost.
- The composted materials will be removed from the windrows and placed in a stockpile.
- Screening equipment will be used to produce the desired size of composted material.
- The screened material will be placed in designated stockpiles.
- The BMPC Supervisor or the designated contractor will arrange for transportation of the processed compostible materials.
- The BMPC personnel or designated contractor will load the material into transport vehicles.

The shredded wastes are removed from the raw materials stockpile and placed into the compost windrows using the loader. A special windrow mixing or turning machine has been purchased to mechanically aerate the windrows. The aeration initially will occur at least weekly.

Water will be added as necessary to the compost windrows using a water truck. It will spray the windrows while driving down the aisles between the windrows.

After many weeks in the windrows (usually 4 to 8 weeks), the composted materials will be placed in a compost maturing stockpile. Trucks and the loader will be used.

Aerated Static Pile Composting

As an alternative process, the compost feedstock received from the mixing operation would be placed daily into aerated static piles for composting. The system is designed for a minimum of 21 days of active composting during which the process will be continually monitored for key process parameters, most notably temperature and moisture. Because biosolids will be part of the composting mixture, all time/temperature requirements as outlined in the EPA 503 regulations will be followed so that the end product will be designated as a Class A, Exceptional Quality product.

To avoid vector attraction, a blanket of up to one foot of finished compost will be placed over the aerated static piles as they are formed. This will be done on a daily basis as the piles are extended or formed. This will have the added benefit of ensuring all individual particles within the aerated static piles meet the time/temperature requirements.

The type of aerated static pile system that may be used is sold by Rexius Forest By-Products, Inc. and is called Express Composting Systems. It is engineered and designed by CH2M-Hill and is based on proven concepts of aerated static pile composting.

Express Composting System Description

This system simply involves drawing air down through the surface of the static piles by withdrawing air from the base of the piles using “air lances” that are connected to a plastic piping network. The piping system is connected to the suction side of a blower. The air from the compost piles is discharged from the blower to a piping system that exhausts the air through a biofilter comprised of finished compost. The piping is portable and reusable for subsequent batches of compost.

The system is designed to make composting as quick and odor-free as possible, and to do it in a way that competes economically with mechanically turned windrow and other static pile systems. The advantages are more production per acre, less material handling (compared to mechanically aerated windrows), more odor control, more moisture control, and more screening productivity. The system is also a more-routine process that improves operating cost-efficiency compared to operations that are continually adjusting their routine in response to odor

production, moisture swings, wet conditions of the composting pad, or seasonal shortages of product.

A sketch of the Express Composting System process layout and a photograph showing the piping system are contained on the next page. The layout shows the arrangement of the piles, mechanical equipment, piping network, and the biofilter. The picture shows two piles and the negative pressure plastic piping leading from the air lances. The air lances are out of view under the base of the piles. The positive aeration pipeline is in place if the operation is to function by aerating the piles from the base.

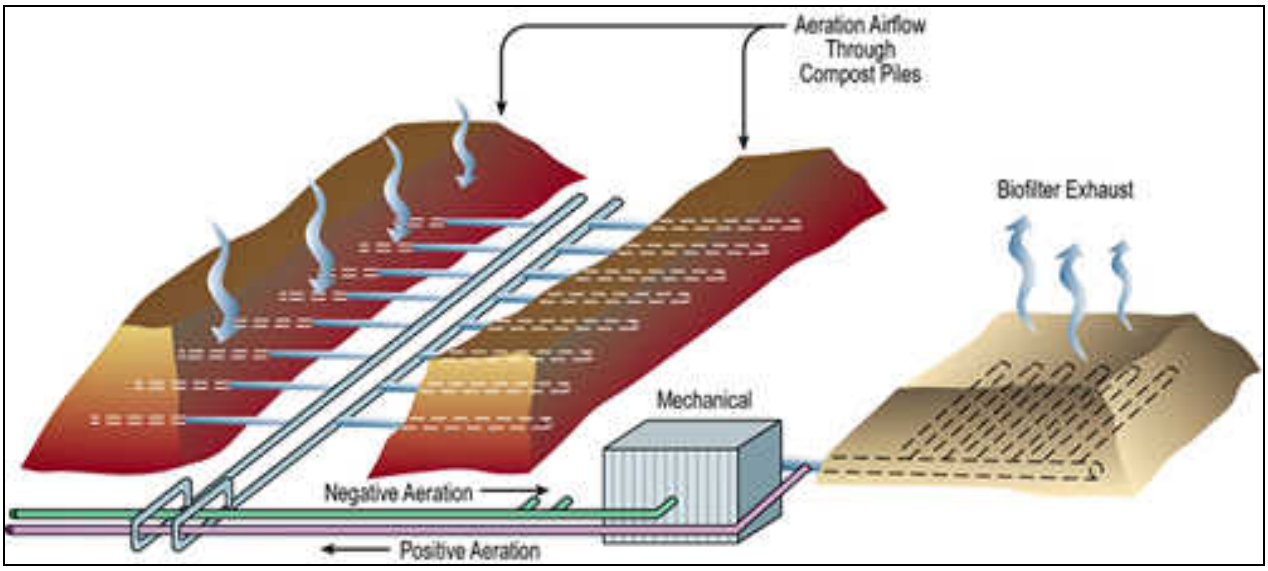
The page following the photographs contains a listing of the design features of the Rexius Express Composting System.

Some labor is required to handle the air lances during pile change-out, and in manually controlling airflow to each pile and the biofilter. However, this type of system has the same operating principles as any negative aeration system with a biofilter. So, once the facility operator is familiar with the system operation, and determines the optimum feedstock, airflows, and residence time for its operation, the initial system can allow transition into a larger system.

No nuisance odors are expected since the aeration air will be sucked down through the surface of the static pile. The layer of compost will also mask the pile odors. The aeration process can be controlled such that sufficient air entry can occur so that the pile sections will be maintained so anaerobic conditions do not occur. The air pulled through the piles will be processed through a biofilter, which is a controlled pile of layered compost positioned over the perforated pipe air discharge zone. A musty odor may be present at times similar to that which occurs in damp forested areas.

Condensate is collected with the negative aeration piping and dropped out in a condensate sump near the blower. This condensate can be pumped and blended into the feedstock or pumped into a treatment system depending upon the needs of the operators. At the WCCSL, if necessary it will be possible to discharge the condensate to the landfill leachate pumping system.

To handle the incoming 450 tons per day of all materials, up to six, 50 horsepower systems would be employed providing up to 21 days of active composting. Each individual system is a stand-alone unit. The system is designed for above ground installation on an improved surface. Each 50 horsepower unit would consist of four aerated piles of approximately 725 cubic yards each.



EXPRESS COMPOSTING SYSTEM AERATED STATIC PROCESS LAYOUT

EXPRESS COMPOSTING SYSTEM AERATED STATIC PILES WITH PIPING NETWORK

Information from Rexius Express Composting Systems

Features and Benefits of the Express Composting Systems ™

- The typical compost process requires frequent turning. This new technique reduces the turning time to once every 14-21 days and requires as little as ½ the total time for completion.
- The odor associated with the composting process is greatly reduced due to greater control of oxygen through the pile.
- The system produces a more complete and homogenous compost.
- The system is easily installed in as little as one day with very low setup costs.
- The unit is very compact and has much smaller space requirements than conventional windrow systems. The system is easily expandable to accommodate future growth.
- It's portable, and the pipes are durable and reusable.
- The system features valve controlled air flow.
- The basic system costs less than the average price of paving an acre of land and handles approximately 3000 cubic yards of material at one time.
- The system is biofilter-capable to control odors of problematic feedstocks.
- Purchase package includes custom engineering to the specific site and operations consultation.

Information from Rexius Express Composting Systems

After the 21-day composting process is complete the aerated static piles will be broken down and piled into static pile windrows for up to six months. These static piles may be located adjacent to the aerated static piles and allow for final product stabilization and maturation. Six months gives adequate time for the final stabilization of the compost to occur resulting in a consistent, high quality compost product being produced.

Post Composting Processing

After the compost has been cured for the designated period the compost will be screened to develop products that meet specifications established by off-site uses. The screening equipment is similar to that used at other composting facilities and in the forest products industry. Equipment may be attached to the screener to remove plastic pieces from the compost. This step improves the overall product quality. Once screened the finished compost may be piled via a radial stacking conveyor where it will remain until shipped to market.

After the compostible materials have been sufficiently composted, the finished materials will be available for use off-site, or for use at the WCCSL to enhance the grass growing ability of the landfill cover soil or to provide erosion control protection on the landfill slopes. The majority of the compost will be used off-site.

Maintenance will be conducted on the equipment generally during daytime operations. Some maintenance may be necessary during nighttime and weekend periods.

More information on the composting facility operations is contained in the WCCSL Report of Composting Site Information (RCSI).

4. RESPONSIBILITIES FOR THE PROCESSING OPERATIONS

The BMPC personnel's prime responsibility shall be to restrict the compostible materials to those materials which are of acceptable type, to provide general supervision of the compostible materials unloading site, and manage the composting operation.

The operations personnel are accountable to the BMPC management and are responsible for the supervision of the operation including organizing, policing, and supervising the compostible materials processing area. This includes control of dust, the collection and disposal of loose rubbish that may accumulate at the processing site, and the immediate supervision of all personnel processing compostible materials at the site.

Firebreaks will be maintained around the composting area and the adjacent wood waste recycling area. If a fire occurs, BMPC personnel will alert the fire control officials and undertake fire control measures identified in the site Fire Control Plan. The occurrence of a fire will be recorded in the site operations daily log and the LEA will be notified within 24 hours.

Fires will be prevented in the composting piles by limiting the depths of the raw material storage pile and the windrows. If a spontaneous combustion fire does occur, the pile will be spread out by tractors after first moving the adjacent windrows. The burning material then will be doused with water.

To utilize a shredder on site, a permit has been obtained from BAAQMD that establishes conditions for the shredder operations. The shredder equipment and operation procedures have been equipped to meet the applicable environmental standards.

The BMPC will designate a representative that is knowledgeable of the compostible materials shredding and screening operations. The BMPC representative is the WCCSL Supervisor.

Any contractor assisting in the program is required to provide proof of general liability and workers compensation insurance coverage.

Dusty conditions would occur if the windrows were too dry. Also, dust could occur from the aisles between the windrows where the tractors operate. Prior to turning the windrows water will be sprayed on the piles and the aisles if rainfall or previous moisture application has evaporated.

The runoff water that has contacted the composting area will be directed to the Area A pond for settling and storage. Excess water will flow to the Area B pond stormwater control pond.

The runoff water may be used in the composting process. Other sources of water are treated effluent from the adjacent West County Wastewater District waste water treatment plant or Area A pond water.

Odors will be controlled through frequent shredding of the incoming materials and aeration of the windrow compost piles. Odors can occur if the piles reach anaerobic conditions.

Annually, the depth of the buffer layer in the composting processing areas will be determined to guard against removal of the cap soil as the compost equipment is operated on the area.

No specific litter control measures would be needed. The primary litter source would be from food materials and waste paper. These materials will be processed in a manner that any blowing paper and plastic items are contained in the operating area.

More information on the process controls and responsibilities is included in the WCCSL RCSI.

5. RESIDUALS MANAGEMENT

The BMPC personnel are responsible for control of drainage water. They also must control dust from the shredding operations, and equipment maintenance materials.

The shredded wood materials of chip size removed during the screening of the compost will be taken off-site for use as mulch or biomass fuel as markets exist. On-site uses might include use of fine size materials as mulch for erosion control or further processing by composting.

Certain non-wood debris may be generated during the processing operations (metals, dirt, litter). As feasible, the non-dirt materials will be salvaged and recycled by delivering them to the appropriate processing facility. The dirt material, if clean, may be processed in the soil reclamation program or used as cover on the landfill are following the postclosure plan.

6. CONTINGENCIES

The BMPC has established response programs for the cases of accidents, fires, and equipment malfunction. The BMPC WCCSL personnel are equipped with a radio to maintain contact with the WCCSL office. The BMPC Management maintain a list of emergency contact numbers and have a Fire Control Plan and a Hazardous Materials Management Plan.

APPENDIX 3C

CONCRETE AND ASPHALT DEBRIS OPERATIONS PLAN SUMMARY

APPENDIX 3C

CONCRETE AND ASPHALT DEBRIS OPERATIONS PLAN SUMMARY FOR THE WEST CONTRA COSTA BULK MATERIALS PROCESSING CENTER

April 2003

Preface

It is the goal of WCCSL, Inc. to minimize the amount of concrete and asphalt debris that is buried in the landfill. The specific recycling goal of this operations plan is to process the concrete and asphalt debris into gravel-like materials useful for on-site roads and also for gas control systems.

This concrete and asphalt processing and recycling program have been developed to document the responsibilities and procedures for segregation, storage and processing of the debris at the West Contra Costa Landfill. This plan covers the aspects of:

1. Acceptance of Concrete Debris
2. Concrete Debris Unloading and Storage Site
3. Concrete Processing Operations
4. Responsibilities of the Processing Contractor
5. Residuals Management
6. Contingencies

The use of the term "concrete debris" in this document is meant to apply to both concrete and asphalt rubble.

1. Acceptance of Concrete Debris

WCCSL will accept concrete debris and place it either in the main landfill or in the concrete recycling area. The landfill supervisor, the scale attendants or the engineering personnel will make the distinction regarding directing the concrete debris to be placed in the concrete recycling area. The materials will also be checked by the Processing Contractor.

Customers may deliver concrete debris only during the published hours of public access to the landfill unless special arrangements are made to correlate with the specific schedule of a construction project (e.g. such as a night-construction project by CalTrans).

No unloading will be authorized until payment of the appropriate fees.

The vehicles delivering the concrete debris will be checked in and out of the landfill to insure that proper unloading directions are given and to allow the WCCSL personnel to know when the vehicle has departed the site. The persons delivering the concrete must adhere to the general rules of the WCCSL facility.

The record keeping maintained by WCCSL shall include the amount of concrete debris and asphalt rubble delivered to the concrete recycling and processing area. An approximate record of the amount of concrete and asphalt processed will also be maintained by WCCSL. The Processing Contractor will participate in this activity.

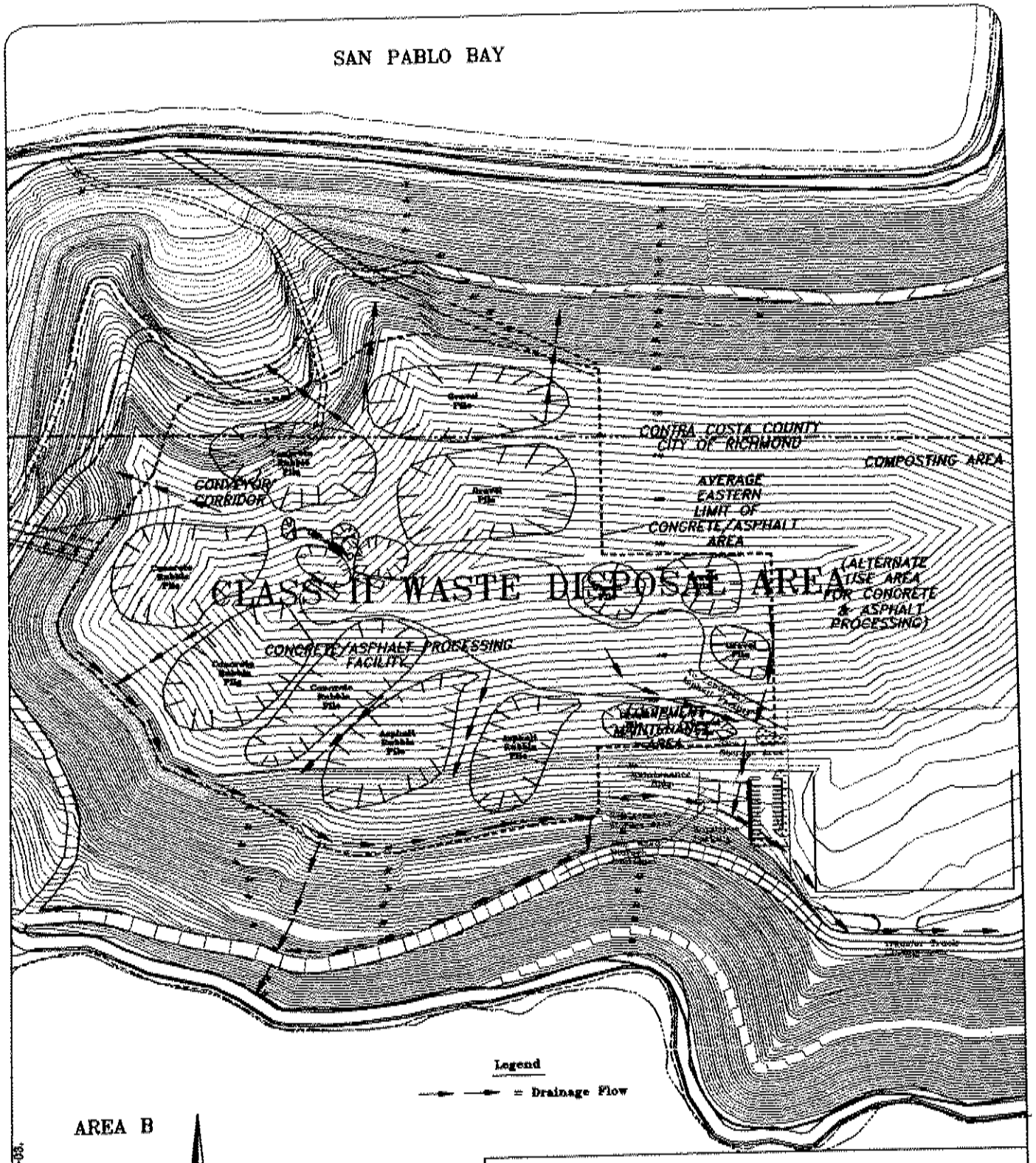
Notice is routinely given to the construction and demolition contractors working in the service area of the landfill regarding the benefits of segregating the concrete from other debris at the construction job sites. A reduced disposal rate is given to materials that are free of wood, rubbish, asphalt pieces, dirt and protruding concrete rebar. The concrete recycling area is also more convenient for unloading large trailer vehicles.

Concrete debris and rubble containing rebar is acceptable if the rebar is not protruding extensively out of the concrete pieces. Extensive amounts of rebar can damage the crushing equipment conveyor belt system. WCCSL, Inc. and its Processing Contractor reserve the right to make the subjective determination regarding "extensive amounts" of steel rebar. Concrete with too extensive an amount of projecting rebar will be rejected from acceptance.

2. Concrete Debris Unloading and Storage Site

WCCSL reserves the right to designate the location of the concrete recycling and processing site within the landfill property in conformance with applicable regulations. The concrete storage and processing operation is anticipated to be moved to the central plateau location as the landfill closure construction sequence proceeds (Figure 3C-1). The initial location is at to the northeastern corner of the WCCSL.

At certain times, the concrete debris may be placed in the winter pad area of the active landfill to build the unloading area so it will sustain traffic during the wet weather period. The site engineering personnel and the landfill supervisor shall designate the winter pad area and determine the amount of concrete to be used for this purpose.



WEST CONTRA COSTA SANITARY LANDFILL

SCALE: GRAPHIC	FDIP Figure 1E FDIPS Figure 4 PCP Figure 3.2-5	DRAWN BY: ZD
DATE: JAN. 2003		EIR-W99C-AP

EIR Figure 3C-1

WCCSL CONCRETE/ASPHALT PROCESSING FACILITY SITE LAYOUT

EIR-W99C-AP-1341-10-10-03

The site chosen for the unloading, storage and processing of the concrete debris and rubble is to be conducive to the needs of the operation. Access to the concrete area is continually supervised by landfill personnel and the Processing Contractor. The concrete storage and processing area is restricted to persons delivering concrete debris, WCCSL operations personnel and professional concrete processing personnel only. It is off-limits to the general public.

During each week, the Processing Contractor's personnel will periodically clear off the unloading area by dozing the concrete debris out into the stockpile. The stockpile of rubble will be 20 to 40 feet deep, thus conveniently positioning the rubble to be reclaimed and processed through the portable crusher unit.

The site is periodically regraded by the Processing Contractor and WCCSL for effective drainage. Drainage and evaporation of rainwater from the site is adequate to prevent the accumulation of standing water. Runoff containment berms and channels are provided down slope from the concrete debris storage site. These facilities are intended to work in concert with the other drainage control facilities installed for the landfill.

Policing of the concrete storage and processing site and the regular processing of the accumulated material are intended to prevent environmental problems.

The environmental controls necessary for the concrete debris recycling and processing operation include:

- Drainage Control
- Fire Control
- Dust Control
- Operator Noise Protection
- Operator Safety Protection

WCCSL is responsible for the drainage and fire control at the concrete storage and processing site. The concrete Processing Contractor and WCCSL are responsible for dust control, operator noise protection, and operator safety protection for their respective operations.

The water supply for the processing operations will be furnished by the Processing Contractor.

WCCSL will maintain the access road. The road has been graveled for all-weather access. Dust control is maintained using water sprayed from a tank truck.

3. Concrete Processing Operations

The frequency of concrete debris processing generally is each weekday throughout the year. A Processing Contractor will be used to process the concrete debris using appropriate crushing and screening equipment.

The management of the concrete debris processing operation must control environmental problems. These include prevention of fires and dust, and control of equipment safety hazards.

WCCSL will maintain firebreaks surrounding the concrete storage pile, the processing equipment site, and the crushed materials storage pile.

The supervision of the processing operations and equipment is the responsibility of the Processing Contractor. Emergency arrangements (e.g., in the case of operator injury) have been established with WCCSL.

The equipment to be used must be suitable for the concrete processing operation. The operators must be trained to work safely. The hours of processing operation will be established for each event and generally will be between 7:00 a.m. and 7:00 p.m. weekdays and Saturday.

The processing steps involve a loader carrying the material from the stockpile and placing it into the crusher feed hopper. The crushed material is either stockpiled if it will be used without screening, or conveying equipment will deliver the crushed material from the crusher directly to a series of screens selected to separate the desired sizes of materials.

4. Responsibilities of the Processing Contractor

The Processing Contractor is accountable to the landfill management and is responsible for the immediate supervision of its operation, and for the obeyance of general landfill rules.

Within the supervising role of the Contractor, the Contractor must organize, police and supervise the area on which it operates. This includes control of dust; the collection and disposal of loose rubbish that may accumulate at the processing site; the prevention of discharge of mechanical or flammable fluids; and the immediate supervision of all personnel processing concrete debris at the site.

The equipment and operation procedures must meet the BAAQMD requirements and applicable environmental standards.

The Processing Contractor has the responsibility to restrict the concrete to that which is of acceptable type, and to provide general supervision of the concrete unloading site. Periodically, WCCSL may furnish equipment to assist the concrete Processing Contractor. If a fire occurs, WCCSL personnel will alert the fire control officials and undertake fire-fighting measures identified in the site Fire Control Plan. The occurrence of a fire will be recorded in the site operations daily log and the LEA will be notified within 24 hours.

The Processing Contractor is also required to provide proof of general liability and workers compensation insurance coverage.

The Processing Contractor must designate a representative that is knowledgeable of the concrete processing operations. No change in the representative can be made without notifying WCCSL, Inc. in writing. The WCCSL representative is the Landfill Manager.

5. Residuals Management

The Processing Contractor is responsible for control of wastewater, dust from the crushing operations, and equipment maintenance materials.

The wastewater generated in the crushing operation (from dust control measure) is to be kept to a minimum, and not be allowed to pond at the site, unless in a controlled manner.

The crushed materials may be used on-site or taken off-site. On-site use includes road construction, and landfill gas control system and leachate control system drain rock. Certain non-rock debris will be generated during the processing operations (metals, dirt, wood, litter).
These materials will generally be placed in the main landfill unless they can be salvaged and recycled. The dirt material, if clean, may be used as daily cover for the landfill.

6 Contingencies

Arrangements have been established for the cases of accidents, fires, and equipment malfunction. The Processing Contractor's equipment operators will notify the WCCSL landfill office personnel. The Contractor will have at least two persons on site during periods when the equipment is being operated. The second person will go to the landfill office in the case of an emergency, if a radio is not available. The landfill office is equipped with a telephone and has radio contact with key landfill personnel. WCCSL maintains a list

of emergency contact numbers and has a Fire Control Plan and a Hazardous Materials Management Plan.

APPENDIX 3D

WASTE RECYCLING CENTER OPERATIONS SUMMARY
SOIL STORAGE BUILDING SITE

APPENDIX 3D

WASTE RECYCLING CENTER OPERATIONS SUMMARY
SOIL STORAGE BUILDING SITE
FOR THE
WEST CONTRA COSTA
BULK MATERIALS PROCESSING CENTER

April 2003

INTRODUCTION

This document was prepared to provide a summary of the current planning efforts for implementation of the Waste Recycling Center (WRC). This was written using the proposed facility location at the existing Soil Remediation Facility at the WCCSL.

Following this Introduction, this summary describes the facility with respect to customers using the Waste Recycling Center and the load-out/haul-out methodology of the recyclables and residual materials. Next, the planned relationships of the Waste Recycling Center to the other Bulk Materials Processing Center operations are described. This is followed by a description of the infrastructure involving access roads and the apron surrounding the building, landfill gas control, drainage control, electricity supply, water supply, telephone, fire control, facility office, employee break room, equipment servicing area, and site security. A residuals management plan is also included.

Waste Recycling Center Concept

WCCSL, Inc. proposes to open the new Waste Recycling Center (WRC) to replace the existing landfill Waste Shuttle Facility. In addition to relocation of this operation, the main changes between the WRC and the Shuttle Facility are the volume of materials handled, the addition of an improved system to load non-recovered wastes into transfer vehicles, and conducting the operations within a large building.

The WRC must begin operation prior to the time the WCCSL is filled to capacity. The primary purpose of the WRC is to construct a permanent facility where WCCSL, Inc. can achieve greater recycling diversion and transfer of the self-haul mixed wastes, wastes from garbage trucks, and the commercial and industrial roll-off boxes that are not processed at the existing Integrated Resource Recovery Facility (IRRF) Central Processing Facility.

Any waste residues remaining after processing for recyclables will be disposed at the landfill working face, or hauled to Potrero Hills Landfill once the WCCSL has reached capacity and is no longer burying wastes for disposal.

The WRC has two parts in separate locations on the landfill: the Mixed Waste Processing Area and the Organic Materials Processing Area.

The BMPC WRC Mixed Waste Processing Area will consist of several main components – a) a receiving area, b) a sorting floor where wastes will be sorted into trash and recyclables, c) an elevated picking line where the recyclables will be sorted, and d) a transfer vehicle loadout area.

The WRC will also include the Organic Materials Processing Area. That area will consist of separate sub-areas for receipt of green waste, wood waste, food waste, agriculture wastes, biosolids, mixed waste paper, and soil.

Current Permit Capacity

This is the use of an existing facility (the landfill and the closed soil remediation facility). WCCSL, Inc. has existing permits for many of the components of the WRC, including recovering recyclables from incoming waste, using mechanized processing equipment, and permits to move waste and processing residues from the processing area to the working face. Most of the mixed waste operations envisioned for the WRC are currently taking place at the landfill Waste Shuttle Facility. WCCSL, Inc. proposes that the existing land use permit for the Soil Remediation Facility be revised from a contaminated soil processing operation to a waste recycling and transfer facility.

The organics processing operation (receiving and grinding green material and wood wastes) now occurs at the existing Composting Facility and mulch/bio-fuel production area.

Proposed Permit Capacity

The contaminated soil processing facility was approved to process up to 1200 tons per day of hydrocarbon-contaminated soil. The WRC is being designed to process an average of 1,000 tons per day of incoming solid wastes and recyclable materials delivered in a combination of private passenger vehicles, pickup trucks, garbage trucks and roll-off box trucks.

Proposed Facility Description Abstract

The WRC will have two waste receiving and handling areas: the Mixed Waste Processing Area and the Organic Materials Processing Area. Figure 3D-1 is the estimated material flow diagram.

The Mixed Waste Processing Area will consist of separate sub-areas for receipt of recyclables, trash, and mixed loads of recyclables and trash. There will be several areas for the processing and removal of recyclables. WCCSL personnel will direct traffic to the proper unloading spot, inspect the incoming materials, and remove obvious ineligible materials. Loads containing all trash and any trash residue remaining after processing will be loaded into transfer trailers to be hauled to the disposal site (either the working face at the WCCSL or Potrero Hills Landfill). Recyclables or recovered materials will be sorted and stored until shipped to markets or end users.

During the 2002-2003 permitting process, selecting the location of the Waste Recycling Center Mixed Waste Processing Area involved two candidate sites at the WCCSL. This description is based on the prime requested location at the existing Soil Remediation Facility, which will be possible since the operation of that facility was terminated during 2001. The second prospective location is in Area A previously used to stockpile landfill cover soil.

The existing building at the old soil remediation facility would need to be expanded to serve as the Mixed Waste Processing Area (Figure 3D-2). This expansion could occur by extending the ends of this narrow building. The building would be more functional if access could be gained through the north and south sides. However, approval would be required from the State Department of Toxic Substances Control (DTSC) to include the vehicle access on the adjacent Hazardous Waste Management Facility (HWMF). Developing such access would need to await the start of the HWMF postclosure period scheduled to occur in 2003 or 2004.

WCCSL, Inc. proposes to obtain all land use approvals for the WRC Mixed Waste Processing Area temporarily operating on the asphalt Waste Shuttle Facility pad, and later within a permanent building at the Soil Facility or in Area A.

The Organic Materials Processing Area is the location where these materials are received, unloaded and initially processed to prepare them for subsequent recovery operations such as composting or biofuel and mulch screening.

The location of the Organic Materials Processing Area is on top of the landfill central plateau adjacent to the composting facility and soil reclamation operation.

The materials would be inspected to remove unwanted items such as plastic bags, metal pieces and concrete chunks. The removed materials would be placed in metal storage bins or placed in designated piles for periodic removal. The processing operations would include grinding and

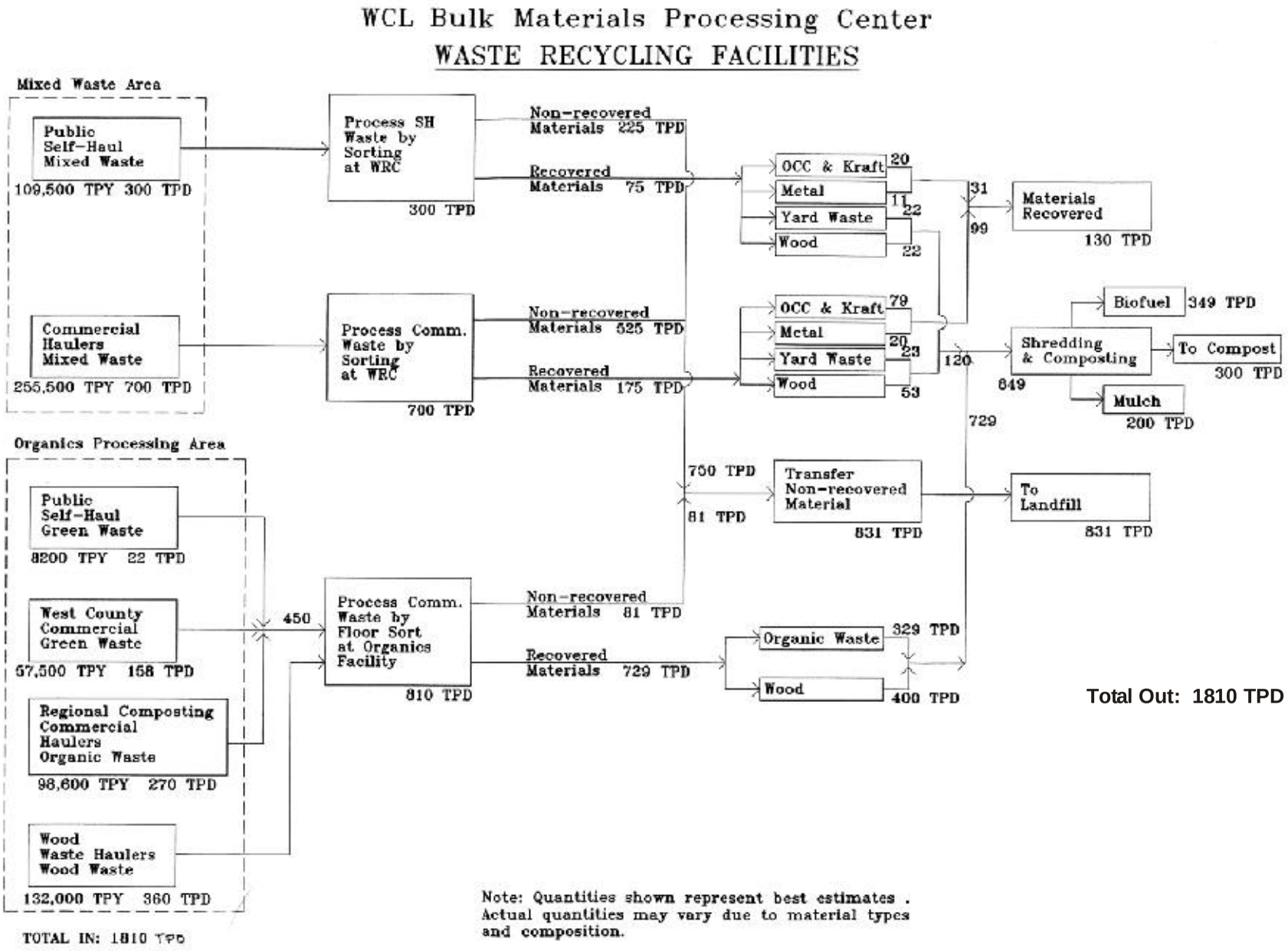


Figure 3D-1 Estimated Material Flow Diagram

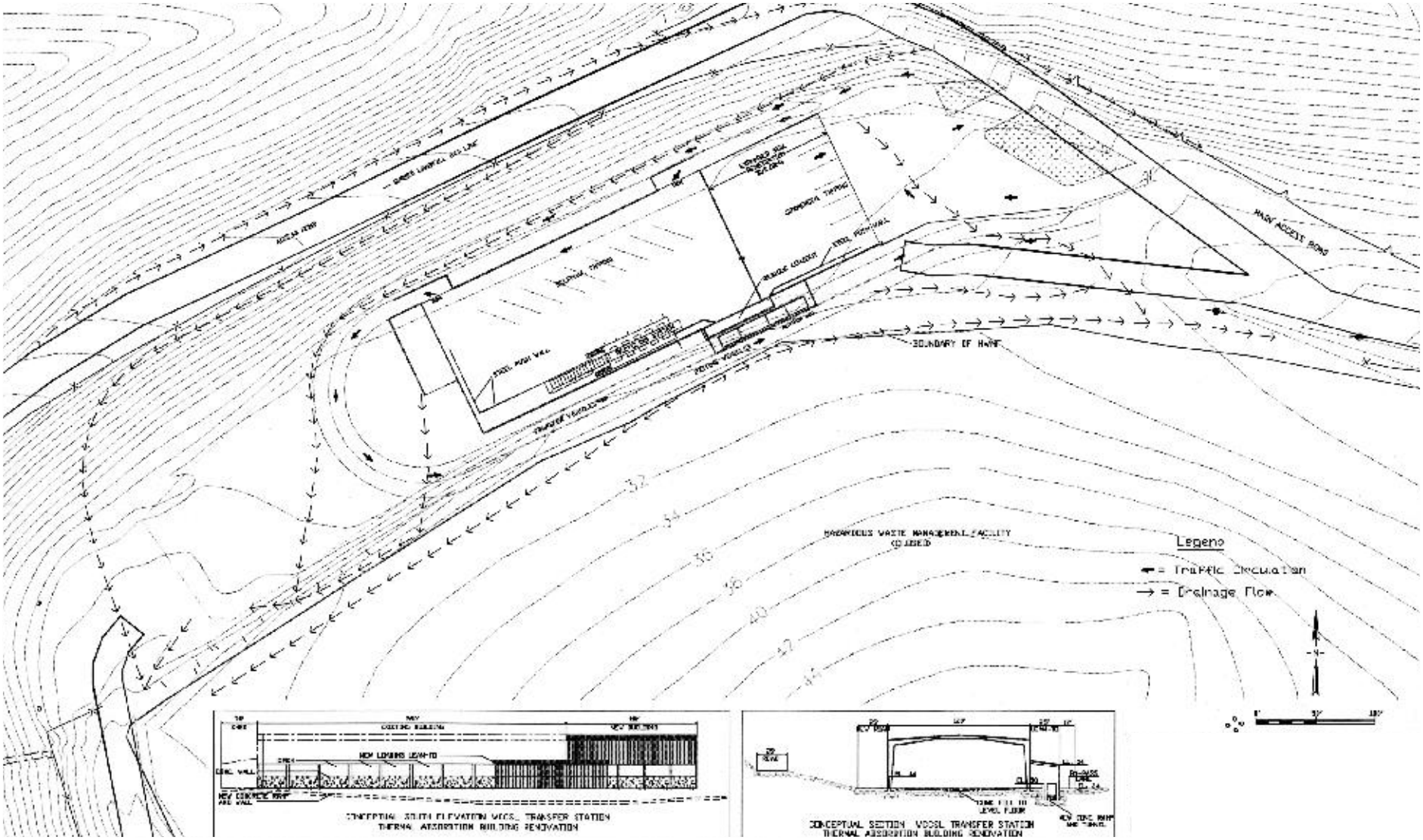


Figure 3D-2 Waste Recycling Facility Site Layout

shredding, and mixing of materials such as shredded green materials and biosolids. The prepared materials would be moved by tractor or truck to the recovery operation such as the adjacent composting facility.

1. DESCRIPTION OF FACILITY OPERATIONS

The waste delivery vehicles will proceed to the scale attendant's building for collection of the fees and initial screening of the waste loads. Initially the existing scalehouse and scales will be used. In the future, it may be desirable to have the scale facility closer to the Waste Recycling Center and Composting facility.

After payment of the fee and/or weigh in, the vehicles with mixed wastes will proceed to the front of the Waste Recycling Center Mixed Waste Processing Area. A building will house the waste processing operation. The initial facility operation may be conducted on a paved area of the Waste Shuttle Facility, enclosed with litter control fencing. This area will be large enough to handle all traffic, including busy weekend use, but involving some customer wait time during peak periods. After the building is constructed and is in use, during weekdays the volume of traffic will be low enough that all wastes can be unloaded inside.

Soil Remediation Facility Location

For the Mixed Waste Processing Area located at the refurbished and expanded soil storage building, as the traffic arrives at the intersection where the Composting and Concrete Processing Facility road continues westward, the Waste Recycling Center traffic would turn to the left. The commercial vehicles would back into the eastern end of the building. Upon leaving they would return to the access road. The self-haul traffic would circle around the Soil Building location and pass eastward along the north edge of the HWMF. This traffic flow pattern would also allow those loads discovered to primarily have green materials to be directed to the Organics Materials Processing Area.

The transfer trucks will pass along the north side of the building, pass around the west end and enter the loading stall in the eastern direction. Removal of the recyclable materials will follow the same path as the transfer trucks. A lane is planned on the south side of the transfer trailer loadout area to allow outbound traffic to circle the building in a counterclockwise direction. The residential and commercial waste collection trucks would be given preferred entrance and use the eastern portion of the building. Self-haul vehicles would enter at the northeast corner and use the

interior portion. As the self-haul site use continued during the day it may be necessary to unload wastes outside the building. This especially will be the case on nice weekends when everyone wants to come out and unload their discarded goods. During weekday overflow times, preference will still be given to the commercial trucks to unload inside the building, due to the larger volume carried by these trucks. These vehicles may also be delivering materials of higher potential salvage value.

The traffic flow pattern into and out of the facility will be designed for safe operations. It is usually preferable for the self-haul drivers to back up looking over their left shoulder for best visibility. This will involve a clockwise flow into and out of the unloading area. The commercial trucks will follow the same route.

Mixed Waste Processing Area Facility Operations Concept

As the wastes are unloaded, the skip loader operator will make the decision whether to push the individual piles to the sorting area or to the transfer loadout area.

Recyclables will be removed as now practiced at the Waste Shuttle Facility through "floor sorting" (picking through the materials while they temporarily lie on the unloading area). Selected materials will be processed by sorting the materials passing down a conveyor belt picking line or sorting station. The picking line to be operated in the Waste Recycling Center will be a unit approximately 10 feet wide and 60 feet long. The rubber-tired bucket loader tractor operator will place those wastes containing salvageable materials into the hopper leading to the conveyor. The salvaging crew will be stationed along the belt with each person picking a designated material (e.g. wood or cardboard) from the conveyor and placing the salvaged item into a metal storage bin parked under the conveyor. All recyclable materials are to be placed in roll-off boxes or designated areas.

The tractor maintaining the facility floor area will push the remaining non-recovered materials to an accumulation area and place them into a temporary pile, or they will be loaded directly into the top of the transfer trailer. While doing this, bulky materials may be crushed by running over them or by using the tractor bucket. A bucket loader tractor will be used to load the materials into the trailer. Several push walls will be installed to make it easier for wastes and recyclables to be moved by the bucket loaders. These walls will be constructed of sturdy steel plates and beams.

A roll-off truck will deliver the boxes of salvaged materials to the appropriate on-site or off-site facilities. For example, boxes that contain green waste, concrete, or ADC will be moved to the appropriate processing area on the WCCSL whenever the boxes are full. Cardboard, metals and other recyclables will be moved off site as needed. The boxes will be allowed to remain at the shuttle area within the building for overnight storage. No wastes are to be left lying on the floor

area after the end of the operating day, with the exception of inert materials (e.g. concrete, asphalt, soil, metals). Periodically the floor will be swept or cleaned with a motorized vacuum sweeper.

Dust control will be provided by spraying the area with a water truck and use of hoses. Litter control will be provided by a mobile sweeper, and regular removal of materials accumulated against the litter fences. Collected materials may be suitable for delivery to the West County IRRF for sorting and recycling.

Rainfall drainage water from the front apron will be considered to potentially be contaminated from oil dripping off vehicles and when waste unloading overflows out onto the front apron area. Hence, the drainage will be specifically directed to the oil/water separators similar to those at the soil remediation facility area. The collected water may require subsequent treatment prior to either being handled as landfill leachate, or being directed to the Area A runoff pond.

2. RELATIONSHIP OF THE WASTE RECYCLING CENTER TO THE OTHER BULK MATERIALS PROCESSING CENTER OPERATIONS

The Waste Recycling Center is part of the Bulk Materials Processing Center operations to be included within the County and City of Richmond Use Permits.

The Waste Recycling Center Organic Materials Processing Area location on the central mound of the closed landfill would be adjacent to the Concrete Processing and the Composting and Wood Processing Facilities. The concrete processing is envisioned to be operated by other parties as tenants on the West County Landfill property.

The Composting Facility and the Waste Recycling Center will be operated by WCCSL, Inc. as joint operations with shared management, personnel and equipment.

The waste screening, weighing, and disposal fee collection will be conducted by WCCSL, Inc. at a central scale facility either located at the current location or in the Waste Recycling Center area.

3. SITE INFRASTRUCTURE

This section describes the Waste Recycling Center site infrastructure.

Access Roads

The Waste Recycling Center is reached via the WCCSL main access road across the San Pablo Creek Bridge (Recycling Lane). This road passes through the entrance area, swings west and crosses the south flank of the Class II landfill (eastern leg), and enters on the east side of the Mixed Waste Processing facility. The main access road continues westward onto the central plateau area. On top of the mound plateau the road turns west and enters the intersection with the Organic Materials Processing Area entrance road. The road then continues west to the Concrete Processing Facility.

The main access road (Recycling Lane) ultimately may be paved and substantially meet the specification for a commercial/industrial development road. Initially, to allow await more settlement of the road, and defer site development costs, the roadway surface will be graveled. Operation of the site with the graveled road will entail maintenance grading to assure that the appropriate surface drainage is maintained.

The roadway used by the transfer vehicles will pass along the north side of the building and circle counter-clockwise around the building. Vehicles entering the building at the northeast corner will exit at the northwest corner. They will then travel around the building to the south and then east paralleling the route of the transfer vehicles.

Apron Surrounding the Building

The aprons surrounding the building will be paved with asphalt. This area will be subject to some differential settlement due to the differing ages of the underlying fill materials. Thus some maintenance repaving will be necessary in future years. The eastern area will be graded to direct the drainage to oil/water separators.

Processing Building

The existing soil remediation storage building is to be remodeled and refurbished to serve the Waste Recycling Center waste processing operation. This is a metal clad steel structure building on a spread footing foundation. The floor of the building has been warped and it will be overlaid with another layer of asphalt or concrete to re-level it. The building site is anticipated to continue to settle over the next 10 years. The major amount of settlement occurred in the 1995-2002 time period of use as a soil storage structure. Periodically the columns may need to be adjusted vertically to account for differential settlement from column to column, and the floor may need patching.

The size of the building currently is 260-feet long and 125-feet wide. The building would be extended about 20-feet on the north side and 100-feet on the eastern end. The transfer vehicle loadout would be constructed on the south side.

The entrance doors will be protected by bollards. The doorways for the commercial truck unloading will be high enough to allow a truck to move forward with the dump body elevated without striking the top of the doorframe.

Initially, the building is being conceived as walled on 3 sides with the eastern doorways left open. Ultimately, roll-up doors could be added to the building.

The loadout area will also be housed inside an extension attached to the south side of the processing building. The transfer trailer would be positioned inside of this side structure which would be high enough to allow a tamping crane to reposition wastes inside the trailer if necessary. The manner of loading the trailer is by a skip loader lifting the materials to the top of the trailer.

Transfer Trailer Weighing Equipment

The concept of weighing the load in the transfer trailer as the wastes are being added remains to be confirmed. The trailer could have an on-board scale system or it could sit on load cells under each axle, or a 70-foot platform scale could be positioned under the truck/trailer.

Landfill Gas Control

Landfill gas control at the old soil remediation site is now provided by the HDPE liner and horizontal piping system placed under the building, on top of the final landfill cap. A similar design will be used in the building additions. The horizontal pipes will be connected into the landfill gas extraction system network. The landfill gas will be processed at the WCL power station.

At critical locations in the Waste Recycling Center processing building, landfill gas monitoring stations will be established similar to that now installed for the soil remediation building. The monitoring will be conducted quarterly as part of the normal postclosure monitoring program.

Landfill gas control at the Organic Materials Processing Facility will be provided by the landfill final cap and the gas recovery system.

Drainage Control

The apron drainage will be sloped away from the Mixed Waste Processing Center building as contained in the WCCSL Closure Plan master grading planning. The eastern area drainage will be directed to the oil-water separator. Since the building will settle more than the apron, the drainage diversion provisions will need adjustment during the Waste Recycling Center operational history. This may be in the form of repaving in front of the door entrances with a slight mounding effect to shunt the drainage away from the building.

The roof drainage of the building will be directed to downspouts. Due to the length of the building, the eave drain will require realignment periodically as the building settles.

At the Organic Materials Processing Facility the area drainage will be maintained by WCCSL, Inc. to conform with the landfill closure and postclosure plans. Ponded water will be avoided due to the slope of the finished landfill surface and periodic regrading. Some of the reclaimed soil and concrete rubble may be used for the grading adjustment.

Litter Control Facilities

The Waste Recycling Center location at the old soil remediation site is provided some shielding from the west winds by the adjacent landfill mound. The building layout with the open doorways on the north and east should provide wind shielding all year.

Litter fences will need to be constructed as wings along the ends of the building. The accumulated litter can be vacuumed up using a portable unit. Since during heaviest site use times when wastes may be unloaded on the eastern apron, it may be necessary to string horizontal netting along the tops of the side fences to prevent airborne plastics from escaping from the site and to provide bird control.

Electricity Supply

The Waste Recycling Center location is now served with electricity by the power line from the WCL Power Plant.

The electrical supply will be from the on-site electrical network which delivers power from the WCCSL landfill gas-fired generating station located in Area A. The electricity powerline from the Leachate Treatment Plant was constructed through the WCL entrance area in 1996 to originally serve the Soil Remediation Facility. Another powerline serves power to the Organic

Materials Processing Area, the Composting Facility and future Concrete Processing Facility locations.

The future power demands of the Waste Recycling Center are being determined by use such as in the processing facility, office, equipment service area, breakroom, and ancillary equipment (e.g. surface drainage pumps).

Water Supply

Water will be necessary for Waste Recycling Center fire control, dust control and processing area washdown. Drinking water will be supplied via bottled water, although EBMUD water service exists at the WCL. Toilet flushing water supply will be from a fresh water supply.

It is envisioned that the Concrete Processing and Composting Facilities will be served reclaimed water from the adjacent West County Wastewater District treatment plant. This will be via a pipeline that extends westward from the HWMF leachate treatment plant location and climbs up the east side of the landfill central mound.

The water used in the Mixed Waste Processing Center will not be reclaimed water. The fire sprinkler water system is planned to be supplied from a firewater service pipeline that will be re-established after being removed for the HWMF final capping project.

Note that all water lines, if buried underground, must be on top of the clay barrier layer component of the landfill cap. Settlement of the buried lines must be anticipated. The lines may be contained in a utility corridor chase, the top of which can be removed for inspection of the lines. Pressure checks of the line will be required as part of the approved WCCSL Postclosure Maintenance Plan.

Telephone

A telephone cable will be laid adjacent to the water pipelines.

A pay telephone will be available in a central area near the processing building. A second payphone will be available outside the employee break room

Fire Control

It is anticipated that the processing building and the trailer loadout areas will be equipped with a fire sprinkler system. The fire water system is envisioned to include both ceiling sprinklers and hose and nozzles stationed at key locations in the building. As many as 6 stations will be needed.

A dedicated 10-inch water line connected to the EBMUD system will supply the sprinkler and fire hose bib system.

Office

The current WCCSL office is located in the entrance area.

For the Waste Recycling Center management personnel, it is envisioned that a separate office complex will be provided within the Waste Recycling Center building. The office will house the facility manager, bookkeeper, load check personnel, and an office for the site environmental & engineering inspection personnel. The office will also serve the Composting Facility. A conference room would be included. The minimum area size presumed in this description is 12 feet x 60 feet.

Employee Break Room

The employee locker area and break room will a portable office building (double-wide) type trailer.

The building size presumed in this description is 12 feet x 60 feet.

The breakroom will serve the Waste Recycling Center and the Composting Facility. The Concrete Processing and Soil Remediation Facilities will have their own employee facilities.

Equipment Servicing Area

Currently, the landfill equipment is maintained at the equipment service center located at the extreme northeast corner of the Class II landfill site. That facility will be moved to the Area A portion of the WCL in 2004.

The equipment used in the Waste Recycling Center (except perhaps the transfer trucks and trailers) and in the Composting Facility will be maintained at the relocated equipment service center. This is a pre-engineered metal building about 60 feet x 60 feet with two cargo containers placed along the sides for a equipment service person's office and supplies storage.

The fueling of the equipment will be via a service truck, which will be filled at the RSS Corporation Yard. Later, an above ground diesel fuel storage tank may be installed. However, the service truck will be necessary to fuel and service the Composting equipment such as the screens and Scarab windrow-turning tractor.

The transfer trucks and trailers may be serviced and maintained off site, or they may be serviced at the Area A maintenance facility.

Dust Control

The graveled access road will be the major dust control maintenance activity. This will be a shared responsibility between the Waste Recycling Center, composting, and concrete processing operations. Two or three water trucks will be available from the adjacent composting and concrete processing operations.

The Waste Recycling Center Mixed Waste Processing Area will be paved and incoming loads will be prescreened to avoid dusty materials. However, dust will occur from the trash materials. Periodic wash down of the apron and processing area will be needed. The water truck from the composting operation can provide that dust control. It will be necessary to sweep (vacuum) the litter on the unloading apron.

At the Organic Materials Processing Area the water trucks will periodically spray the receiving and unloading area for dust control. Water sprays will be used on the grinding/shredding equipment as necessary. The raw materials feedstock will be sprayed with water prior to grinding to also control fugitine dust.

Site Security

The primary security will be the fences and gates located at the end of Parr Blvd. As the landfill is closed, it may be desirable to have more full-time access to the BMPC facilities. Then gates would be installed on the main access road.

The fencing needed for security at the Waste Recycling Center will be a function of access to the WCCSL. For example, for the Public Access Trail, fencing will be needed on the north side of the Compost Processing Facility and Acme Hill, and on the western end of the Concrete Processing Facility.

4. RESIDUALS MANAGEMENT

The Bulk Material Processing Center personnel are responsible for control of drainage water. They also must control dust from the shredding operations, and equipment maintenance materials.

The residuals from the shredded wood materials and compost processing are described in the information provided elsewhere.

Certain dirt and rock debris may be generated during the processing operations (dirt, litter). The non-dirt materials will be salvaged and recycled by delivering them to the appropriate processing facility. The dirt material, if clean, may be processed in the soil reclamation program or used as cover on the landfill area.

5. CONTINGENCIES

The Bulk Material Processing Center operator will have established response programs for the cases of accidents, fires, and equipment malfunction. The Bulk Material Processing Center WCCSL personnel will be equipped with a radio to maintain contact with the WCCSL office. The Bulk Material Processing Center Management will maintain a list of emergency contact numbers and have a Fire Control Plan and a Hazardous Materials Management Plan.

APPENDIX 3E

WET/DUSTY MATERIAL BLENDING PROCESSING OPERATIONS SUMMARY

APPENDIX 3E

WET/DUSTY MATERIAL BLENDING OPERATIONS SUMMARY FOR THE WEST CONTRA COSTA BULK MATERIALS PROCESSING CENTER

December 2002

INTRODUCTION

This document was prepared to provide a summary of the operations plan for the Wet/Dusty Material Blending Operation.

This description first summarizes the operation with respect to how customers access the facility, and the load-out/haul-out of the processed materials/soil mixture. Next, the planned relationships of the Wet/Dusty Material Blending Operation to the other Bulk Materials Processing Center operations are described. This is followed by a description of the infrastructure involving access roads and the apron surrounding the processing area, landfill gas control, drainage control, electricity supply, water supply, telephone, fire control, office, equipment servicing area, and site security. A residuals management plan is also included.

1. DESCRIPTION OF FACILITY OPERATIONS

WCCSL, Inc. affiliate, Bay Soil Remediation, completed the last hydrocarbon-contaminated soil treatment in December 2001. This process involved the thermal treatment of the soil to destroy the hydrocarbons present in the soil. The processing equipment has been sold for removal from the site. The proposed new soil treatment venture involves receiving high moisture content muds and sludges and blending them with waste soil to result in a mixture containing less than 50% moisture. In addition, powdery wastes would be mixed with the high-moisture content materials, thus binding the dust sized particles into the mixture. Most of the mixed material can be used for Alternative Daily Cover (ADC) or for final cover. The volume of material handled in the existing Soil Processing Building or on the final capped landfill if the building is used for the Waste Recycling Center will be the same or less than currently authorized amount of hydrocarbon contaminated soil in the County Land Use permit.

The wastes processed and the resulting moisture content of the waste/soil mix would be those that would make the materials eligible as (1) ADC materials for the active landfill, (2) foundation material for the MSW landfill final cap, (3) acceptable for landfill disposal, or (4) acceptable for off

site use. The following are examples of the types of high-moisture content materials to be processed:

1. Tank bottoms
2. Petroleum containing liquids
3. Car wash sludge
4. Storm drain cleanout silt and sludge
5. Ink sump cleanout sludge
6. Bags with paint dye dust
7. Waste perlite and vermiculite
8. Vegetable oil sludge
9. Oily cullet sludge

Items 6 – 9 may not be suitable for landfill ADC materials.

Two modes of operation are proposed depending upon the availability of the soil processing building. If the building were available prior to its use as the Waste Recycling Center, the high moisture content wastes would be spread over a layer of dry soil placed previously on the asphalt floor of the building. Then a rubber tired loader or grader would mix the wet materials with dry soil until the proper moisture consistency is reached. The loader would be used to load the transport trucks. If the mixing takes place on top of the landfill, it may occur inside a structure erected for that purpose. If the building is not available, then the wet materials would be mixed with the dry soil in batches inside a large metal bin. The bin would be located on top of the landfill plateau near the existing Waste Shuttle Facility (Figure 3-3). The mixing would be accomplished using an excavator equipped with a toothless bucket. After the mixing, the excavator would be used to load the transport trucks.

The vehicles delivering the wastes and the blending soils would proceed to the WCCSL entrance area to the scale facility for check-in and initial screening of the soil loads

After weighing in on the scale, the vehicles delivering the waste materials would proceed to the front of the processing area. The trucks will be checked before they are unloaded to assure they contain the pre-approved wastes. The high moisture content wastes will be discharged by the delivery vehicle directly into the processing area, or if applicable, they will be unloaded into a holding tank.

Later, the tank contents will be delivered by pipe or hose to the processing area. Dusty materials will be delivered directly to the processing area.

Trucks containing the soil to be used in the blending process would proceed to the side of the processing area. After being cleared for unloading, they will be directed to the designated soil storage location. As the incoming blending soils are unloaded, the skip loader operator would push the soil into a storage pile adjacent to the processing area.

The processed wastes/soil mixture would be removed from the processing area by the skip loader and placed into the hauling vehicles. The processed wastes/soil mixture would be removed by trucks using the roads leading up to the landfill Central Plateau. Removal of the residual materials will follow the same path as the processed waste/soil mixture trucks. For the case of use of the material off-site, the loaded trucks would exit the site on the main access road.

Dust control during waste processing and soil blending would be provided by carefully incorporating the dusty wastes with high moisture content wastes in the mixing area. Litter control should not be necessary due to the low volume of trash included in the incoming waste materials.

2. RELATIONSHIP OF THE WET WASTES/DUSTY MATERIALS PROCESSING OPERATION TO THE OTHER BULK MATERIALS PROCESSING CENTER OPERATIONS

The Wet/Dusty Material Blending Operation will become part of the Bulk Materials Processing Center operations when included within the County and City Use Permits.

The Wet/Dusty Material Blending Operation location at the facility previously used for treatment of hydrocarbon containing soils (site #1) would be located in the County area. The location near the existing Waste Shuttle facility (site #2) would be in the City area of the WCCSL. The Wet/Dusty Material Blending Operation is a companion to the Composting and Wood Processing Facilities, and the planned Waste Recycling Center. These facilities are to be operated by WCCSL, Inc. as joint operations with shared management, personnel and equipment.

The Wet/Dusty Material Blending Operation initial load checking, weighing, and processing fee collection will be conducted by WCCSL, Inc. personnel at the scale facility located in the entrance area.

3. SITE INFRASTRUCTURE

This section describes the Wet/Dusty Material Blending Operation site infrastructure. Two possible siting areas are included since the operations may initially occur at the existing facility

previously used for the hydrocarbon contaminated soil remediation operation, and later may occur on the landfill central plateau area.

Access Roads

The main access road (Recycling Lane) ultimately will be paved and substantially meet the specifications for a commercial/industrial subdivision road. Initially, to allow more settlement of the road to occur, and defer site development costs, the roadway surface will be graveled. Operation of the site with the graveled road will entail maintenance grading to assure that the appropriate surface drainage and dust control is maintained. This road is also used for access to the concrete processing, composting, Waste Recycling Center, and the landfill central plateau area.

The first site is reached via the WCCSL main access road across the San Pablo Creek Bridge. This road passes through the entrance area, turns west past the WCCSL scalehouse onto the eastern leg of the MSW landfill and passes along the north side of Site #1 for the Wet/Dusty Material Blending Operation. The road branches into the Site #1 facility entrance. At the west end (rear end) of the Processing Operation a road leads south and then west up the south slope road to the landfill central plateau.

The second Processing Operation site is adjacent to the paved Waste Shuttle Facility. The main access road on the central plateau serves this area.

Apron Surrounding the Processing Area

At the first site the apron on all sides of the storage building is paved with asphalt. This area has been subject to some differential settlement due to the underlying fill materials. Maintenance repaving periodically is necessary. The area grade will be maintained to direct the drainage to the site drainage channels.

The second site is located on the final capped landfill. The apron around the processing area will be gravelled. The area grade will be maintained to provide the proper drainage conditions.

Processing Facility

A storage building was erected at the first site to enclose the contaminated soil. It is a metal clad steel structure building on a spread footing foundation.

High concrete walls provide push walls to encircle the storage area. The floor of the building is asphalt paving. Much of the building site initial settlement of about 2 to 4 feet has occurred over the first 5 years of building use. Thus the major amount of settlement has now occurred. The

building columns will need to be adjusted vertically to account for differential settlement from column to column. The floor will be overlaid with another layer of asphalt as necessary.

The size of the building is 260 feet long and 125 feet wide. The entrance doorways are protected by bollards since site users may back into the building doorway. The doorway for the truck unloading is high enough to allow a dump truck to pass with the dump body elevated without striking the top of the doorframe.

At the second site the processing area would be located on the final capped central plateau area near the Waste Shuttle Facility. This operation in dry weather can occur via placing a pad of soil approximately 2 feet thick. The mixing would occur on top of this pad by adding another layer of soil that would be blended with the waste materials. During inclement weather, the wet materials would be mixed with the dusty materials and dry soil in batches inside large metal bins. The mixing would be accomplished using an excavator. During rainfall, the mixing operations would be halted and the bins would be tarped.

Landfill Gas Control

Landfill gas control is provided at both prospective sites by the horizontal piping system that was placed under the areas beneath the final landfill cap. This is a standard feature of the WCCSL final capping projects. These horizontal pipes are connected into the landfill gas extraction system network. The landfill gas is processed at the on-site power plant.

At the first site a second piping system is placed within the gravel layer of the leachate control system under the building floor. This system is a drainage blanket installed under the building floor on top of a 60 mil HDPE liner. This serves as a gas barrier under the asphalt pavement floor. Landfill gas monitoring stations have been established. The monitoring is conducted quarterly as part of the normal WCCSL monitoring program.

Drainage Control

At the first site the apron drainage is sloped away from the building to prevent it from entering the soil storage building. Since the building may ultimately settle more than the apron, the drainage diversion provisions will need adjustment during the Facility operational history.

This may be in the form of repaving the area in front of the door entrances with a slight mounding effect to shunt the drainage away from the east and west ends of the building. The roof drainage of the building is directed to downspouts. Due to the length of the building and landfill settlement caused by the concentrated soil storage loading, the eave drains have required realignment as the building has settled.

At the second site the grade of the processing area would be maintained such that drainage will flow around and away from the area. During wet weather, the wet materials would be mixed with the dusty materials and soil in batches inside a large metal bin using an excavator.

Litter Control Measures

No specific litter control measures would be needed.

Electricity Supply

Both of the prospective Wet/Dusty Material Blending Operation locations are served with electricity from the on-site electrical network power line. The power source is the WCCSL landfill gas-fired generating plant located in Area A. Backup electricity supply is provided through the intertie with the PG&E grid.

Water Supply

Water would be required for Processing Operation dust control and processing area washdown. Drinking water is supplied via bottled water. At the first site the toilet facility water supply is from a fresh water supply. A portable toilet would be used at the second site.

At the first site the water used in the Processing Operation for the dust control is city water. The main water system is supplied by a 10-inch pipeline that parallels the WCCSL entrance area road. The pipeline is connected to the EBMUD water main near the Parr Blvd./Garden Tract Road intersection. The dust control and washdown water is supplied via a parallel 4" line.

The second site will be supplied with water via water trucks or from the reclaimed water line that will serve the composting operation and the concrete recycling facility.

Ultimately, these water lines will be buried underground on top of the clay barrier layer component of the landfill cap. Reclaimed water may be used for dust control and washdown. Pressure checks of the lines are required as part of the approved WCCSL Postclosure Maintenance Plan.

Telephone

A telephone line extending from the WCCSL Scale House area currently serves the Soil Remediation Facility. At the time of closure cap construction a telephone cable will be laid adjacent to the reclaimed water pipeline.

Fire Control

Due to the inert and non-combustible wastes to be processed, no special fire control measures are necessary.

Office

The landfill office will serve the Wet Waste/Powdery Material Processing Operation. This office is located in the WCCSL entrance area.

Equipment Servicing Area

At the first site the facility equipment will be maintained at the western end of the soil storage building where equipment service supplies are located. This is within an extension of the engineered metal storage building. The fueling of the equipment would be from the WCCSL landfill equipment service truck.

At the second site the equipment also would be serviced by the WCCSL equipment service truck.

Dust Control

At the first site the facility access road and aprons are paved. Soil that is tracked out of the building can be a source of dust. Periodically the paved areas would be swept or hosed off as a dust control maintenance activity.

At the second site a water truck would periodically spray the apron area for dust control.

In the operations, a potential source of dust would be the dusty wastes that would be processed. Examples of these are the foundry sand and baghouse fines, and paint pigments. These dust sources would be controlled by mixing these materials with the wet wastes to form a paste-like consistency. Then this mixture would be blended with soil to reach the desired product characteristics.

Site Security

The primary security is the WCCSL exterior fences and gates located at the end of Parr Blvd. As the landfill is closed, it may be desirable to have more full-time access to the Bulk Materials Processing Center facilities. Then gates would be installed on the main access road near the position of the current WCCSL scale house.

4. RESIDUALS MANAGEMENT

The Wet/Dusty Material Blending Operation personnel are responsible for control of drainage water and equipment maintenance materials. They also must control dust from the unloading and processing operations.

Certain concrete, asphalt and rock debris may be generated during the processing operations. The materials may be salvaged and recycled by delivering them to the appropriate processing facility, or transferred to the landfill. Other trash materials that are received as incidental materials in the waste loads will be appropriately stored in containers and periodically removed from the facility.

5. CONTINGENCIES

The Bulk Material Processing Center operator has established response programs for the cases of accidents, fires, and equipment malfunction. The Bulk Material Processing Center WCCSL personnel are equipped with radios to maintain contact with the WCCSL office. The Bulk Material Processing Center Management maintains a list of emergency contact numbers and has a Fire Control Plan and a Hazardous Materials Management Plan.

APPENDIX 3F

WOOD WASTE RECOVERY OPERATIONS PLAN SUMMARY

APPENDIX 3F

WOOD WASTE RECYCLING OPERATIONS PLAN SUMMARY FOR THE WEST CONTRA COSTA BULK MATERIALS PROCESSING CENTER

April 2003

PREFACE

It is the goal of Integrated Resource Recovery Facility (IRRF) program to minimize the amount of wood waste that is buried in landfills through implementation of this Wood Waste Recycling Operations Plan. The specific recycling goal of this Plan is to process the wood waste into crushed wood material that is suitable for mulch materials, wood chip recovery or composting.

This wood waste processing and recycling program has been developed to document the responsibilities and procedures for segregation, storage and processing of wood waste at the West Contra Costa Sanitary Landfill (WCCSL) site. This plan covers the aspects of:

1. Acceptance of Wood Waste
2. Wood Waste Unloading and Storage Site
3. Wood Waste Processing Operations
4. Responsibilities for the Processing Operations
5. Residuals Management
6. Contingencies

1. ACCEPTANCE OF WOOD WASTE

The Bulk Materials Processing Center (BMPC) will accept wood waste materials and have it placed in the wood waste recovery area. Customers may deliver wood waste only during the published hours of public access to the WCCSL site unless special arrangements are made to correlate with the specific schedule of a construction project (e.g. a night delivery to avoid freeway congestion).

No unloading will be authorized until payment of the appropriate fees.

The vehicles delivering the wood waste will be checked in and out of the BMPC site to insure that proper unloading directions are given and to allow the site personnel to know when the vehicle has departed the site. The persons delivering the wood waste must adhere to the general rules of the WCCSL facility.

The record keeping maintained by the BMPC shall include the amount of wood waste delivered to the wood waste recycling and processing area. An approximate record of the amount of wood waste processed will also be maintained by the BMPC management.

Notice will be given to the construction and demolition contractors working in the service area of the BMPC regarding the benefits of segregating the wood waste from other debris at their construction job sites. A reduced disposal fee is planned for wood materials that are free of metal, rubbish, concrete, asphalt pieces, and dirt.

No wood which has been treated with chemicals such as creosote or pentachlorophenol will be accepted.

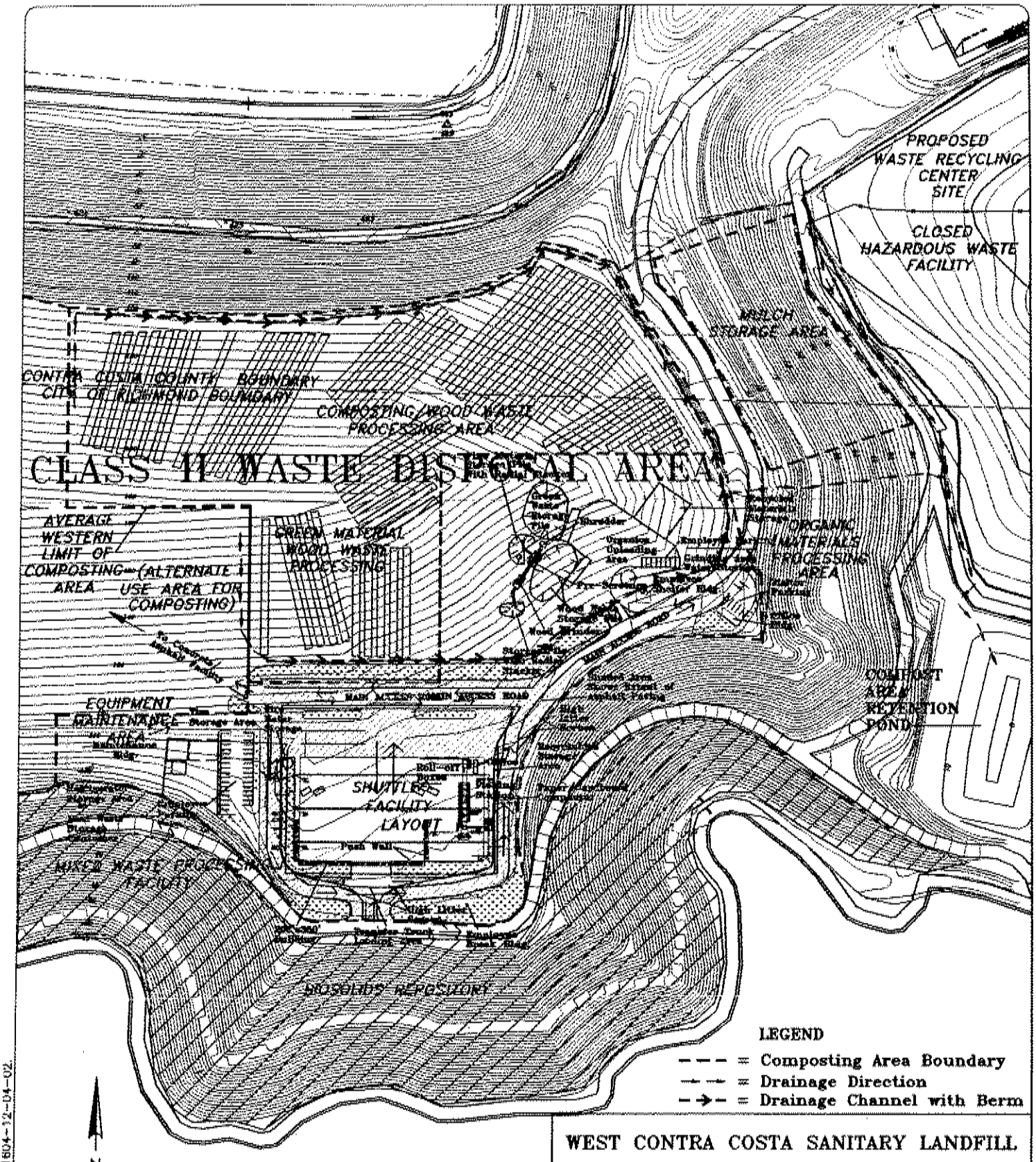
Wood waste containing too much concrete, metal, rubbish and dirt will be refused entry to the wood waste processing facility.

2. WOOD WASTE DEBRIS UNLOADING, STORAGE AND PROCESSING SITE

The wood waste unloading and processing site is shown on the West County Landfill in Figure 3F-1.

The BMPC reserves the right to designate the location of the wood waste recycling and processing site within the WCCSL property in conformance with applicable regulations. The wood waste storage and processing operation initially is planned to be sited on the central mound zone of the WCCSL adjacent to the composting area.

The wood waste processing area is on the closed landfill. To protect the landfill cap from disturbance, an extra depth of soil has been placed over the final cap. A minimum thickness of 3 feet of compacted soil is placed under the unloading area, stockpile areas and the shredding area. Benchmarks have been established to assure that the 3-foot buffer zone is not removed over time as the wood waste processing continues.



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WEST CONTRA COSTA SANITARY LANDFILL

SCALE: GRAPHIC	DRAWING WC-5 RDSI/FDIP Figure 1C	DRAWN BY: ZD
DATE: NOV. 2002		EIR-W99WOODL

FIG. 3F-1 COMPOSTING/WOOD RECOVERY SITE LAYOUT

FDIPS-Figure 3
CPC-Figure 3.2-7

The site chosen for the unloading, storage and processing of the wood waste is conducive to the needs of the operation. Access to the wood waste area will be continually supervised by the BMPC WCCSL personnel. The wood waste storage and processing area will be restricted to persons delivering wood waste, BMPC operations personnel and wood waste processing personnel only. It is off-limits to the general public except those delivering loads of wood waste.

During each week, the BMPC WCCSL personnel will periodically push the wood waste in the unloading area using a rubber tired loader to place it into the stockpile. The stockpile generally will be 10 to 20 feet deep.

The site will be periodically regraded by BMPC WCCSL personnel for effective drainage. Drainage grading and evaporation of rain water from the site is adequate to prevent the accumulation of standing water. Runoff from the wood waste storage site will be directed to the Area A and B ponds.

Policing of the wood waste storage and processing site and the regular processing of the accumulated material prevent environmental problems.

The environmental controls necessary for the wood waste recycling and processing operation include:

- Drainage Control
- Fire Control
- Dust Control
- Residuals Management
- Operator Noise Protection
- Operator Safety Protection

The BMPC is responsible for the drainage and fire control at the wood waste storage and processing site. The shredding operator is responsible for dust control and operator noise and safety protection.

The water supply for the dust and fire control operations will be furnished by the BMPC WCCSL tank truck used in the composting operation or the wood shredding contractor if they are a different entity.

3. WOOD WASTE PROCESSING OPERATIONS

The frequency of wood waste processing generally will be determined by the amount of wood waste reaching a sufficient quantity to justify the shredding operation. At this time it is anticipated that wood waste processing operations will occur at weekly frequencies.

The management of the wood waste processing operation must control environmental problems. These include prevention of fires and dust, and provision of proper drainage.

The BMPC WCCSL personnel will maintain the plowed or graded firebreaks and the drainage facilities surrounding the wood waste storage pile, the processing site, and the shredded materials storage pile.

The initial wood waste processing operations include shredding, conveyors and screening equipment.

The BMPC WCCSL site Supervisor will be the contact person. The supervision of the processing operations and equipment is the responsibility of the Processing Contractor. The operators are to be trained to work safely. Emergency arrangements (e.g., in the case of operator injury) have been established with BMPC Management.

The equipment to be used will be suitable for the wood waste processing operation. The equipment includes a loader to move the wood and load the processed materials into transport trailers. The shredding equipment is anticipated to process about 70 tons per hour. The hours of processing operation currently are between 7:00 a.m. and 5:00 p.m. seven days a week. Revisions to the schedule may be approved by the City and County

The processing operation involves the following steps:

- The wood waste will be pushed into the stockpile immediately adjacent to the area where the shredder is positioned.
- The shredded material will be placed into an adjacent stockpile.
- Screening equipment will be used to produce the desired size of shredded material.
- The screened material will be placed in designated stockpiles.

- The BMPC Supervisor or the designated contractor will arrange for transportation of the processed wood wastes.

- The BMPC personnel or designated contractor will load the material into transport vehicles.

Maintenance will be conducted on the equipment during times when the facility is not operating. This may include nighttime or weekend periods.

4. RESPONSIBILITIES FOR THE PROCESSING OPERATIONS

The BMPC personnel's prime responsibility shall be to restrict the wood waste to those materials which are of acceptable type, and to provide general supervision of the wood waste unloading site.

The operations personnel are accountable to the BMPC management and are responsible for the supervision of the operation including organizing, policing, and supervising the wood waste recycling area. This includes control of dust, the collection and disposal of loose rubbish that may accumulate at the processing site, and the immediate supervision of all personnel processing wood waste at the site.

If a fire occurs, BMPC personnel will alert the fire control officials and undertake fire control measures identified in the site Fire Control Plan. The occurrence of a fire will be recorded in the site operations daily log and the LEA will be notified within 24 hours.

To utilize a shredder on site, a permit has been obtained from BAAQMD that establishes conditions for the wood shredder operations. The shredder equipment and operation procedures have been equipped to meet the applicable environmental standards.

The BMPC will designate a representative that is knowledgeable of the wood waste shredding and screening operations. The BMPC representative is the WCCSL Supervisor.

Any contractor assisting in the program is required to provide proof of general liability and workers compensation insurance coverage.

5. RESIDUALS MANAGEMENT

The BMPC personnel are responsible for control of drainage water. They also must control dust from the shredding operations, and equipment maintenance materials.

The shredded wood materials of chip size will be taken off-site for use as mulch or biomass fuel as markets exist. On-site uses might include use of fine size materials as mulch for erosion control or further processing by composting. Certain non-wood debris may be generated during the processing operations (metals, dirt, litter). The non-dirt materials will be salvaged and recycled by delivering them to the appropriate processing facility. The dirt material, if clean, may be processed in the soil reclamation program or used as cover on the landfill area.

6. CONTINGENCIES

The BMPC operator will have established response programs for the cases of accidents, fires, and equipment malfunction. The BMPC WCCSL personnel will be equipped with a radio to maintain contact with the WCCSL office. The BMPC Management will maintain a list of emergency contact numbers and have a Fire Control Plan and a Hazardous Materials Management Plan.

APPENDIX 3G

SOIL RECLAMATION FACILITY OPERATIONS SUMMARY

APPENDIX 3G

SOIL RECLAMATION FACILITY OPERATIONS SUMMARY
FOR THE
WEST CONTRA COSTA
BULK MATERIALS PROCESSING CENTER

April 2003

INTRODUCTION

This plan was prepared to provide a summary of the operations plan for the Soil Reclamation Facility.

This description first describes the facility with respect to how customers access the Facility, and the load-out/haul-out of the processed soil materials. Next, the planned relationships of the Soil Reclamation Facility to the other Bulk Materials Processing Center operations are described. This is followed by a description of the infrastructure involving access roads and the apron surrounding the facility, landfill gas control, drainage control, electric supply, water supply, telephone, fire control, office, equipment servicing area, and site security. A residuals management plan is also included.

1. DESCRIPTION OF FACILITY OPERATIONS

The soil delivery vehicles proceed through the WCCSL entrance area to the scalehouse building for check-in and initial screening of the soil loads.

After weighing on the Facility scale, checking in, and paying fees, the truck will proceed to the designated Soil Reclamation area. The trucks are unloaded on the area established for storing the soil while awaiting processing. As the incoming soils are unloaded, the skip loader or dozer operator will push the soil into a stockpile.

Figure 3F-1 shows the location of the Soil Reclamation Facility at the West County Landfill.

The soils will be removed from storage by the skip loader and placed onto the conveyor leading to the soil processing unit (rotary and vibratory screens). The fine sized soil passes through the screens and the screened materials (chunks of concrete, asphalt and rocks) are discharged of the

end or sides of the units. The screened residual material will be further processed to enable it to be recovered by the WCCSL concrete/asphalt processing facility.

Dust control at the discharge of the soil processing unit is provided if necessary by spraying the soil as it passes on the conveyor. Litter control should not been necessary due to the low volume of trash included in the incoming soil.

The processed soil will be removed by trucks using the roads leading up to the landfill Central Plateau. Removal of the residual materials will follow the same path as the processed soil trucks.

2. RELATIONSHIP OF THE SOIL RECLAMATION FACILITY TO THE OTHER BULK MATERIALS PROCESSING CENTER OPERATIONS

The Soil Reclamation Facility will become part of the Bulk Materials Processing Center operations after it is included within the County and City Use Permits.

The Soil Reclamation Facility location on the central mound of the closed landfill is a companion facility to the Concrete Processing and the Composting and Wood Processing Facilities.

The Composting Facility, the Waste Recycling Center and the Soil Reclamation Facility will be operated by WCCSL, Inc. as joint operations with shared management, personnel and equipment.

The Soil Reclamation Facility soil screening, weighing, and processing fee collection will be conducted by WCCSL, Inc. at the main scale facility located in the entrance area.

3. SITE INFRASTRUCTURE

This section describes the Soil Reclamation Facility site infrastructure.

Access Roads

The site is reached via the WCCSL main access road across the San Pablo Creek Bridge (Recycling Lane). This road passes through the entrance area, turns west past the WCCSL scalehouse. The Soil Reclamation Facility is at top of the main road to the landfill Central Plateau.

The main access road (Recycling Lane) ultimately will be paved and substantially meet the specifications for a commercial/industrial subdivision road. Initially, to allow more settlement of the road to occur, and defer site development costs, the roadway surface will be graveled. Operation of the site with the graveled road will entail maintenance grading to assure that the appropriate surface drainage is maintained and dust control.

Apron Surrounding the Facility

The apron on two sides of the storage area will be graveled to provide all-weather access. Maintenance regrading will be conducted periodically as necessary. The area grade will be maintained to direct the drainage to the intended location.

Landfill Gas Control

Landfill gas control is provided by the horizontal piping system that was placed under the final landfill cap. This is a standard feature of the WCCSL final capping projects. These horizontal pipes are connected into the landfill gas extraction system network. The landfill gas is processed at the power station.

Drainage Control

The apron drainage is sloped away from the processing facility to prevent it from entering the facility. The maintenance regrading will assure the drainage flows away from the facility.

Litter Control Measures

No specific litter control measures should be needed.

Electricity Supply

The Soil Reclamation Facility does not need electrical service. In the future lights may be installed on poles to provide better visibility. The lights will be directed toward the work area, and will be shrouded to avoid light glare to off-site areas.

Water Supply

Water is required for Soil Reclamation Facility, dust control and processing area washdown. Drinking water is supplied via bottled water.

The water used in the Soil Reclamation Facility for the fire water system and the dust control is supplied by the WCL water trucks.

Telephone

Telephone service is not needed at the Soil Reclamation Facility.

Fire Control

Fire control is not necessary for the Soil Reclamation Facility.

Office

The WCCSL office serves the Facility.

Equipment Servicing Area

The Facility equipment is maintained with the other WCL equipment.

Dust Control

The Facility access road and apron is graveled. Soil that is tracked out of the building can be a source of dust. Periodically the area is watered with the WCL water truck.

Site Security

The primary security is the WCCSL exterior fences and gates located at the end of Parr Blvd. As the landfill is closed, it may be desirable to have more full-time access to the Soil Reclamation Facility. Then gates would be installed on the main access road near the position of the current WCCSL scale house.

4. RESIDUALS MANAGEMENT

The Soil Reclamation Facility personnel are responsible for control of drainage water and equipment maintenance materials. They also must control dust from the unloading and processing operations.

Certain concrete, asphalt and rock debris may be generated during the processing operations. As feasible, the materials may be salvaged and recycled by delivering them to the appropriate processing facility, or transferred to the landfill.

5. CONTINGENCIES

The Bulk Material Processing Center operator has established response programs for the cases of accidents, fires, and equipment malfunction. The Bulk Material Processing Center WCCSL personnel are equipped with a radio to maintain contact with the WCCSL office. The Bulk Material Processing Center Management maintains a list of emergency contact numbers and have a Fire Control Plan and a Hazardous Materials Management Plan.

APPENDIX 3H

BIOSOLIDS MANAGEMENT PLAN SUMMARY

APPENDIX 3H

BIOSOLIDS MANAGEMENT PLAN SUMMARY FOR THE WEST CONTRA COSTA BULK MATERIALS PROCESSING CENTER

April 2003

PREFACE

The West County Landfill (WCL) is continuing its program of working with the adjacent West County Wastewater District (WCWD) in management of the biosolids generated from the District's Public Operated Treatment Works (POTW). This document summarizes the activities planned at the Landfill to receive, process and recover the biosolids. Materials from other POTWs may be received if within the ability of the WCL to handle the materials. This program is part of the WCL Bulk Materials Processing Center (BMPC).

The biosolids management program also is proposed to include processing a portion of the biosolids materials in the WCL Composting Program. A full composting permit is being requested for the upsized composting operation to expand the scope from the existing Green Material Composting Permit held by the WCL.

This summary includes the following aspects of the biosolids management program:

1. Background Information
2. Biosolids Handling Concepts
3. Biosolids Description
4. Possible Co-processing With Other Materials
5. Location of Handling Facilities
6. Specifications for Biosolids Spreading and Drying
7. Runoff Control
8. Processed Biosolids Removal
9. Protection of Landfill Cap and Annual Maintenance Activities
10. Other Environmental and Operational Factors
11. Monitoring and Reporting
12. Facility Cleanup and Closure Activities

1. BACKGROUND INFORMATION

Contractual arrangements have been made between the WCL and the WCWD for the landfill company to provide for annual cleanout and disposal of the POTW biosolids. The long-term permit agreement was established in 1999. The two entities have been cooperatively investigating the possible ways that areas of the WCCSL could be used for biosolids drying and the manner of using the processed materials.

The goal of these studies is determining how an alternative manner of biosolids handling can be conceived and permitted, thus allowing for replacement or reduction of use of the existing WCWD biosolids lagoons. During 2000 and 2001 the lagoon-dried biosolids were successfully used as soil amendment materials on the final caps constructed on the MSW landfill.

This summary primarily covers the proposed spreading of the biosolids on specific site areas as soil conditioner and the processing and recovery of the materials. One program involves the annual spreading of biosolids on final capped areas of the landfill as an annual activity to improve the erosion control vegetation growing conditions. This may include both the MSW landfill and the closed Hazardous Waste Management Facility. The second program envisions use of the southern and eastern MSW landfill slopes as locations for annual repetitive spreading and drying of high moisture content biosolids.

As mentioned in the Preface, the biosolids management program also is proposed to be affiliated with biosolids composting at the WCL.

2. BIOSOLIDS HANDLING CONCEPTS

The following information is directed to spreading and drying the biosolids on the MSW landfill slopes. This presents the outline of the concepts for segregation, storage, spreading and processing of the materials. This operation may also be applicable to using portions of the Hazardous Waste Management Facility if allowed by the approved Postclosure Plan and the Permit.

Delivery of Biosolids

Delivery by truck – The moisture content of the biosolids that can be trucked to the WCL can cover an extensive range. Biosolids of high moisture content (e.g. 5 to 10% solids) can be hauled in a tank truck. Lower moisture content materials (20% solids or greater) can be hauled by a dump truck.

Spreading of the biosolids carried by truck to the WCL involves unloading the materials at both the top of slope and at the base.

This requires the trucks to have unencumbered access to these spreading areas. The access roads available to be used by the trucks and the biosolids application areas are shown on Figure 3H-1.

Only the lower moisture content materials area are applicable to unloading the biosolids at the bottom of the slope to be spread up the slopes with a dozer.

Delivery by pipeline – The transportation of biosolids through the pipeline for the 4000 foot distance between the POTW and the WCL spreading area requires the material to be less than of about 6% solids.

WCL envisions the transport pipeline to be buried in an alignment that extends from the northwest gate of the POTW and runs parallel to the leachate pipelines passing by the power plant and the HWMF leachate treatment facility. Aboveground pipes would run along the top of the east and south landfill slopes.

Storage

At the WCCSL large volume storage of the high moisture content biosolids pumped from the POTW probably is limited to ponds that would be created in Area A. This option would allow less lagoon area to be needed at the POTW. However, Area A may be used as the location of the Waste Recycling Center, and hence may not be available. Wastes underlie all other areas at the WCCSL, and thus ponds cannot be used there. A 20,000-gallon tank may be established on the landfill central plateau to serve as a filling station for the spray truck.

Storage of lower moisture content materials trucked to the WCCSL would be in the form of unloading the biosolids in piles and rows at the top or base of the slope where they are to be spread. These truckload piles may sit in these locations for up to one week while awaiting the scheduled spreading of the material on the slope. Monitoring of the piles will be done by observing the pile area to detect any nuisance odors. Through experience in handling the stored biosolids, a management schedule will be created to avoid odors, yet allow some moisture to be removed during

the storage time, while sequencing the spreading operation to result in site equipment usage to be optimized.

Spreading

Spreading of the lower moisture content biosolids carried by truck to the top of slope and at the base would be conducted using a dozer tractor. The tractor would move the materials from the storage piles and push them downhill or uphill.

The intent is to spread the materials in the area designated for that amount of biosolids to a depth of about 3 to 4 inches. After that layer has dried, in one or two weeks an additional layer can be applied.

Spreading of the pipeline-discharged high moisture biosolids may occur by gravity flow for the 100 to 200 foot distance down the slope. Further spreading of the accumulated application to achieve a uniform thickness layer would be accomplished using the dozer. Alternately, the liquid biosolids may be sprayed from a tank truck or through large diameter nozzle sprinklers. The truck would be driven above the bench roads and the biosolids would be sprayed downwind.

Drying

Solar drying will be the major mechanism to reduce the moisture contained in the biosolids lying on the slopes. Moisture removal also will be accomplished from wind blowing across the slopes. The drying will occur over a week or two during the sunny days of late spring, summer and fall. During lower temperature periods, the biosolids may skin over, trapping the moisture in the bottom of the layer. At those times, the dozer may be used to track through the materials and break the skin crust.

Another potential drying method is growing plants such as rye grass or wheat to consume the moisture of the biosolids spread during the wet weather season. This may be very applicable to the pipeline or truck spraying options since the spreading of the biosolids flowing down the slopes would resemble flood-type irrigation of crops and the spraying would sprinkle the liquid biosolids over the plants. At the appropriate time, the plant materials may be harvested from the slopes and processed in the composting facility, or be cut and baled for erosion control on construction areas.

Removal or Incorporation into Landfill Cap

If the dewatered biosolids materials are not to remain in place they will be removed by a dozer tractor, pushing the dried material to the base of the slope to the loadout areas.

Incorporation of dried biosolids in the final landfill cap involves determining that the new depth of biosolids is desirable. This may be through co-spreading of the biosolids with solidified wastes and soils. This mixture will add to the thickness of the final cap, providing additional protection of the landfill.

3. BIOSOLIDS DESCRIPTION

Sources

The adjacent West County Wastewater District would be the major source of biosolids processed at the WCL. Other possible sources are the other POTWs in the West County area in Hercules and Pinole. Additional POTWs may be served if sufficient biosolids handling capacity exists at the WCL.

Characteristics

The candidate biosolids are restricted to adequately digested biosolids that represent no health risks. The moisture content range will range from about 2 percent to 75 percent solids. In this discussion "high moisture content biosolids" are defined as having a moisture content of between 2 to 6 percent by weight.

Quantity

The quantity of biosolids generated per month at the WCWD averages about 2 million gallons at 2 to 5 % moisture. This is equivalent to 10,000 cubic yards per month at 5% solids or 8,500 tons per month.

The biosolid quantities available from other sources are yet to be determined, but are expected to be only about 50% of the biosolid amounts generated by the WCWD.

Chemical Character

The biosolids are analyzed annually to provide a listing of the inorganic and organic chemical substances contained in the materials. No constituents of concern are anticipated from the expected POTW sources of the biosolids. A listing of the results of laboratory analysis of the WCWD biosolids is included at the end of this Appendix.

4. POSSIBLE CO-PROCESSING WITH OTHER MATERIALS

A parallel program to the biosolids processing is the spreading of dredged materials generated by local bay and harbor dredging operations. Another group of materials that may be spread on the slopes is the solidified materials developed from the processing of the wet wastes/powdery materials. Prior to the acceptance of any material, the generator's technical representatives must supply data to WCL, Inc. that shows the material meets the WCCSL acceptance criteria.

Dredged Materials

The dredged materials are the silty and sandy deposits removed from bay channels and harbors during dredging projects. These types and sources of materials have been identified in the BCDC dredged materials management alternatives evaluation. These are wet materials that require substantial drying and should only be spread to a depth of about one foot until dry.

Solidification Materials

WCL, Inc. proposes to operate a solidification program. Typical candidate materials are wet wastes and powdery materials that include silt biosolids from sumps and baghouse fines. The solidification is achieved by blending wet and dry materials or adding wet or dry soil to result in the desired moisture content and material plasticity.

Soil

Excess soils may be spread on the slopes to allow combining with biosolids or solidification materials, or to thicken the final cap. These soils would be those free of tree branches, rocks, concrete and rubbish.

Miscellaneous

Foundry Sand – The WCCSL receives foundry sand from the companies operating in Berkeley. After closure of the active landfill, an alternative handling method must be found. These dust prone materials can not be handled through a transfer station.

Sand Blast – Spent sand blast requires disposal and would make a good addition to the biosolids cake if the metals content is acceptable.

5. LOCATION OF HANDLING FACILITIES

Management Areas

The prime locations for the repetitive biosolids spreading areas are the south and east slopes of the MSW landfill. These locations are shown on Figure 3H-1.

The access routes to the east and south slopes are shown on Figures 3H-1. These include the main haul road climbing up to the top of the central plateau of the MSW landfill, and the south slope roads. The main access roads to the siting area are graveled and provide all-weather access. Maintenance grading is provided to assure that the appropriate road smoothness, surface drainage and dust control is maintained. These roads are also used for access to the other site areas. Site maintenance inspection and roads spur off of these roads allowing equipment to reach all parts of the slopes.

The area available on the south slope is 14 acres. The eastern slope area is about 5 acres.

The liquid biosolids could be sprayed on other slope areas. Subsequently, these areas would be disked to incorporate the biosolids into the cover soil, or left as a thin layer on the vegetation.

Description of Side Slope Areas

The upper and lower south and east slope areas average a 3:1 horizontal to vertical slope angle. The length of the slopes range from 50 to 400 feet.

The slopes are covered with low vegetation in the form of weedy plants and grasses. Prior to application of the biosolids, the vegetation would be mowed or trampled with a dozer tractor to reduce the height of the vegetation to a few inches, if necessary.

Adjacent Uses At Landfill

Existing uses are the organics receiving and grinding area and the waste shuttle area. When the landfill closes, one of the alternative areas for locating the Waste Recycling Center is on top of the landfill central plateau, immediately above the south landfill slope.

Another potential siting area of the Waste Recycling Center is Area A, which is at the base of the eastern slope.

The joint operation of the biosolids spreading area and the Waste Recycling Center at either of these areas should occur without any problems.

6. SPECIFICATIONS FOR BIOSOLIDS SPREADING & DRYING

The objective of the biosolids spreading is to apply the materials in a uniform manner over the area. The thickness of the new layer is selected to allow the biosolids to quickly dry in the sunlight and from the wind so that another layer can be spread on the biosolids processing slopes or to allow tilling or blending of the dried materials into the landfill final cap. If they are sprayed on the cover plants prior to the day-weather season, the plants would in essence be irrigated with the liquid. Thus, the plants may stay green all summer, resulting in more moisture removal through evapotranspiration.

The moisture content of the biosolids governs the spreading method. Biosolids with high water content will flow down the slope. Those of lower moisture content will need to be spread down or up the slope with a low-ground pressure dozer tractor.

Spreading by Truckload

The concept is to deliver the low moisture content biosolids to the slopes adjacent to the access roads. Usually the intent is to spread the materials down the slope. Very high moisture content biosolids (2 to 6% solids) would be hauled by a tank truck and the materials would be sprayed through a nozzle directly onto the slopes. Also they could be spread from a hose and allowed to flow down the slope. Possibly they could be discharged directly from the truck and be allowed to flow down the slope. Biosolids with lower moisture content would be carried to the spreading area in a dump truck. The truck would dump the load at the top of the slope, and sometimes at the base of the slope. The dozer tractor would uniformly spread the biosolids down or up the slope.

Spreading via a Piping System

Due to the large number of tank truck loads that would be required to handling the annual generation of the POTW biosolids, it may be desirable to pump the high moisture content biosolids directly from the POTW through a buried pipeline that links the treatment plant with the top of the landfill. Pipelines are being constructed during 2002-2003 for leachate handling

and non-potable water delivery to the landfill. A pipeline and the pumping system with lateral pipelines running along the top of the south and east slopes could be included in the project.

The manner of discharging the biosolids may be via a hose to spray the materials onto the slope. An alternative manner of biosolids discharge may be through a piping system which large-sized holes drilled every foot or so that will allow the sludge to be discharged along the slope top.

The pipeline could also be connected to the storage tank located on top at the central plateau.

Specifications for Reuse as Dried Biosolids

The amount of moisture in the processed biosolids will be related to the intended use of the biosolids.

Dried biosolids to be used for soil conditioner usually will contain from 20 to 40 percent moisture. The higher the moisture content, the heavier the load which affects the transportation of the product.

No chemical constituents are anticipated to be present in the dried biosolids that would restrict the use of the materials as soil conditioners.

Specifications for Reuse of Biosolids Mixed with Soil

The finished dried biosolids mixed with soil will contain from 20 to 40 percent moisture.

The chemical nature of the biosolids/soil mix is expected to be neutral. Both the biosolids and the soils placed on the processing area will be checked to assure that no excessive contaminant levels will occur.

To prepare the biosolids and soil for mixing, the soil and biosolids will be spread in layers. This will involve several alternating layers of biosolids and soil. When the layers are excavated during the removal of the materials from the slopes, mixing will occur. As the hauling trucks are loaded, additional mixing will occur.

Specifications for Incorporating into Side Slope Final Cover

The dried biosolids to be incorporated into the slope final cover will contain from 20 to 60 percent moisture. The mixing method will determine the amount of acceptable moisture content. If the materials are to be plowed into the upper layer of the landfill cap, the moisture content

could extend across the entire range. To mix the materials by track-walking the slope with a dozer requires the materials to be drier, probably less than 40 percent moisture.

The anticipated areas where the dried biosolids would be incorporated into the final cover include the western end of the landfill, the northern side, and the southern side facing the HWMF.

To create better vegetation growing conditions, dried biosolids may also be mixed into the HWMF final cap vegetative soil layer. After spreading, the materials may be left in place of several weeks to achieve further drying before incorporating them into the vegetative soil layer.

If the drying lagoons are no longer used at the POTW, then the dried materials to be spread on the final cap areas will be obtained from the east or south slope biosolids processing areas.

Specifications for Composting the Biosolids

One method of composting the biosolids is to directly apply the wet biosolids from a tank truck to the windrows. This would add both nutrients and moisture to the green materials being composted.

It may be desirable to first process the biosolids by storing them on the slope spreading areas. For example, the compost operation cannot receive much high moisture content biosolids during the wet weather season. Some biosolids may be spread down the south slopes during the dry weeks that periodically occur during the rainy season. Then in April-May these semi-dried biosolids could be removed and be placed in the compost windrows for processing into compost. If the biosolids have been dried on the slopes to remove sufficient moisture for composting, the moisture content may range from 30 to 60 percent.

Rates of Repetitive Spreading on the Processing Areas:

Table 1 presents an initial estimate of the amounts of biosolids that can be placed on the available WCL slopes. The assumptions and general calculations are shown, giving the range of materials that can be accommodated on the slopes. Approximately 22 acres appear to be available.

The rate of spreading is dependent upon the time required to dry the biosolids to the desired moisture content. A 3-inch thick layer of biosolids may dry within one week if the daily maximum temperature exceeds 70 degrees and some wind is present. Cooler temperature will require greater times. Spraying the biosolids from a tank truck will be limited by the tendency of

Table 1

APPLICATION OF BIOSOLIDS TO SPREADING AREAS
VOLUME OF LIQUIDS APPLIED

Example 1
SPREADING RATE = 1 GALLON/5 SQ FT

Zone	Area Acres	Area Sq Ft	Rate 1/5 gal/sf	Quantity Gallons
1	3.2	140000	5	28000
2	9.9	430000	5	86000
3	5.1	220000	5	44000
4	4.4	190000	5	38000
Total	22.5	980000		196000

Example 2
SPREADING RATE = 1 GALLON/15 SQ FT

Zone	Area Acres	Area Sq Ft	Rate 1/15 gal/sf	Quantity Gallons
1	3.2	140000	15	9333
2	9.9	430000	15	28667
3	5.1	220000	15	14667
4	4.4	190000	15	12667
Total	22.5	980000		65333

Notes:

Assumes uniform spreading of the biosolids over available area

Berm at base of each slope intercepts and routes runoff water

the liquids to run down the slope. A vegetated surface will hold more liquids then a bare soil slope.

The estimated application amounts range from about 2,900 gallons per acre to 8,700 gallons per acre. Assuming that applications can be made four times per month, then from 260,000 gallons to 770,000 gallons can be applied per month.

Truckloads – The above monthly ranges equate to 4 to 12 truckloads per day.

Pipeline or tank truck discharge – The above monthly ranges equate to 8,700 to 26,000 gallons per day.

The above estimated rates will be re-evaluated after the test-spreading program. WCL, Inc. has conducted a limited test spreading of the biosolids to gather additional information that can be applied to the design of the pipeline spreading and truck spraying option. The tests conducted in 2002 confirmed the feasibility of applying the 2% to 6% solids content biosolids on the landfill slopes.

In the test applications conducted in 2002 the following were noted. Two test procedures were conducted during summer 2002. The first was the direct bulk placement of the liquid biosolids on the vegetated final capped landfill slope from the back gate of the tank truck. The second involved spraying the biosolids through a hose, pump and nozzle connected to the tank truck.

In the first test, approximately 2000 gallons were unloaded in about 5 minutes from the tank truck when parked at the top of the 3:1 H:V slope. The biosolids quickly fanned out downslope in approximately a 20-foot wide swath. But, much of the liquid ran in concentrated flow approximately 6 inches to 1-foot wide downslope through the 6 to 12 inch high dried browned-off vegetation. The liquid evaporated within several days and no penetration into the soil cover occurred. It was apparent that to obtain a more consistent application, the biosolids would need to be discharged through a diffuser pipe laid at the top of the slope, or they should be sprayed on the hillside.

The second test involved spraying two 4000-gallon tank truckloads on the slope. Due to the equipment used and the approximately 15 mph wind conditions, the liquid biosolids were sprayed up the final capped slope. This allowed effective observation of the runoff pattern and the biosolids spraying could be applied to different portions of the area (bare soil versus 12 inch deep dried vegetation) in durations that were varied to avoid runoff. Approximately 4 times more liquid could be applied to the vegetated area compared to the bare soil. The vegetation absorbed or restricted the water from flowing downslope. The spray application, using a monitor nozzle with a 1-inch opening, resembled a hydroseeding application that uses a low mulch content mix. With the equipment used and the wind conditions, the biosolids spray range

extended up slope about 80 to 100 feet. The final result was a covering over the soil and vegetation less than 1/16th inch thick. The application rates achieved in the test appear to have averaged about 0.5 gallons per sq ft on the bare soil, and 3 to 4 gallons per sq ft on the vegetated slope. The 4000-gallon load was sprayed over the hillside in about 10 minutes. The soil cover surface dried within several hours, with no penetration. It would appear that on a sunny, windy day that several spray applications could be made on the same day over an area.

Prior to full-scale implementation of the biosolids spreading, further testing will be conducted to refine the rates and methods of application.

7. RUNOFF CONTROL

This discussion primarily applies to the biosolids processing areas located on the south and east final capped slopes of the landfill.

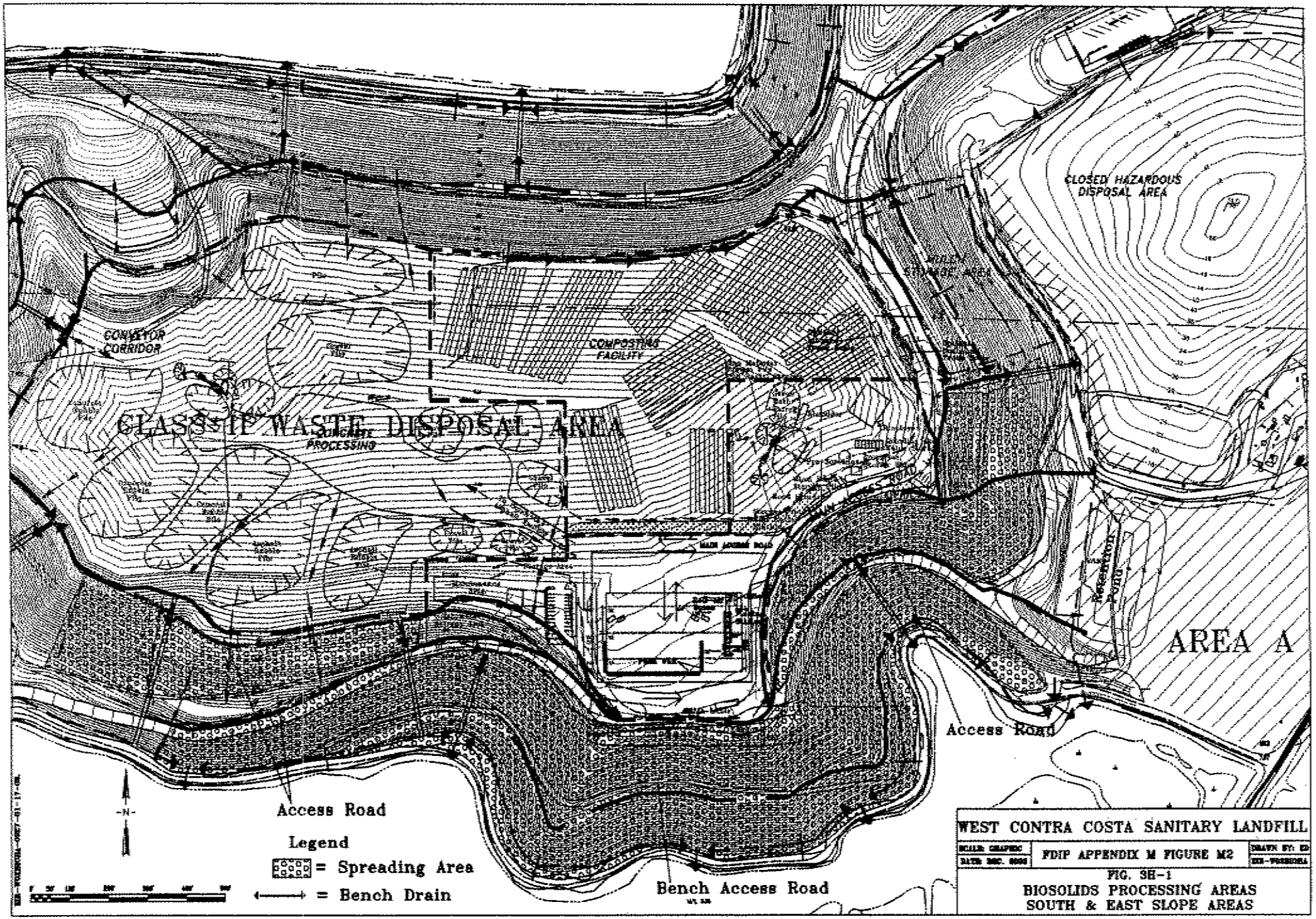
After the biosolids spreading has been approved by all agencies, the biosolids spreading area will be named in the WCCSL Stormwater Control Program filed with the State. Sampling points will be established as described below.

Drainage Control

The drainage grading for the area above the processing area slopes will prevent the water from these upper areas from entering the slope area. The grades surrounding the processing area would be maintained such that drainage will flow around and away from the area.

Controls At Base Of Slope

The control concept is to place a berm at the base of the slope where the runoff water would be collected in a series of low points where pumps would be located in sumps. At the base of the slopes the landfill leachate pipeline is buried within a berm that overlies the final cap. That berm would be raised in height to contain the runoff and direct the water to the pump sumps. Grasses would be planted to transpire water and uptake nutrients in the ditches behind the berm. The locations of the runoff control berms and channels are shown on Figure 3H-1.


CONVEYOR CORRIDOR
COMPOSTING FACILITY
CLASS II WASTE DISPOSAL AREA
BIOSOLIDS PROCESSING
CLOSED HAZARDOUS DISPOSAL AREA
MAIN ACCESS ROAD
Reservoir Pond
AREA A
Access Road
Access Road
Bench Access Road
-N-
Legend
= Spreading Area
= Bench Drain
WEST CONTRA COSTA SANITARY LANDFILL
FDIP APPENDIX M FIGURE M2
FIG. 3H-1
BIOSOLIDS PROCESSING AREAS
SOUTH & EAST SLOPE AREAS

Runoff Handling – Pump to POTW

The water may be pumped into the leachate piping system used for the HWMF treated leachate discharge to the WCWD sewer. The amount of water would be similar to the water now pumped off of the existing biosolids drying lagoons at the WCWD POTW. That rainwater now is decanted off of the ponds and pumped back to the POTW headworks.

Pump To Top Of Slope For Evaporation

An alternative manner of handling and disposing the rainwater is to evaporate it on the slope. This option is only available during the last portion of the wet weather season. However, during the wet season usually during December or January, several weeks of dry weather occur each year. The runoff can be pumped to the top of the slope where it will evaporate after it wets the slope.

Stormwater Monitoring Sampling Points

Drainage from Areas Where Biosolids are Spread as Soil Amendment on the Final Capped Areas – The erosion control plants growing on the landfill cap uptake nutrients and consume large amounts of moisture. Some of the moisture infiltrates into the root zone during the wet season and is stored. Subsequently the plant transpiration process extracts this moisture until the plant withers during the dry season. The warm weather evaporation removes the remaining moisture.

Stormwater moisture in excess of the soil field capacity will run off. For those areas where the biosolids have been placed in that year as soil amendment, WCL will maintain an unscreened compost windrow or shredded green material (approximately 8 feet wide and 2 feet deep) at base of the spreading area for first season. At the WCL this method has been shown to retain a significant amount of runoff from the periodic rainstorms, and the nutrients are absorbed in the windrow. In the second season the base of slope windrowed materials will be spread on the slope as a thin mulch layer. Observations will be made for rainfall runoff from these areas and to check that the runoff handling system is functioning as anticipated.

The application of biosolids on the final capped slope areas will follow a rotational pattern. A specific annual area will be designated and used that year, and that area probably will not receive the next application for 5 to 10 years.

Drainage from Processing Areas – The processing areas will essentially be in a disturbed condition during the entire year as the repetitive spreading and drying cycles occur. No plants will be present on the slopes initially in the wet weather season. Thus, the rainfall runoff could

contain suspended and settleable solids, and dissolved nutrients. These rainfall runoff flows will require containment. At the processing areas, runoff drainage will be diverted at the base of slope. This design feature is described earlier in this section. The water will flow to pumps that will pump the runoff back to the top of the slope during times of no rainfall, or discharge the water into the leachate discharge line. No landfill leachate will be pumped during the periods when the stormwater is being transported to the POTW. The runoff volume should be less that the amount of rainfall that would have been collected in the existing drying lagoons, in as some water will be evaporated and shallow infiltration and temporary storage of the rainfall would occur on the slope.

8. PROCESSED BIOSOLIDS REMOVAL

This discussion applies to the biosolids processing areas located on the south and east final capped slopes of the landfill.

Method

A dozer tractor will push the biosolids to the base of the slope for loadout. The tractor operator will carefully skim off the layer of material leaving a thin residue to avoid removal of the final cap vegetative soil layer. The dried materials will be accumulated at the base of the slope and temporarily stockpiled. These storage zones are adjacent to the access roads.

A rubber tired loader will load out the stored materials into dump trucks for transport to the market location, to the composting facility, or to another slope area on the landfill for final spreading as soil conditioner. After removal of the dried biosolids, the tractor will backblade the slope to smooth it for the next application of biosolids.

The removal activities will be practically restricted to the dry seasons of the year when truck access is available to the loading area.

Equipment

The following equipment would be used:

- Tank truck to transport high moisture content biosolids to the composting facility or to the spreading slopes.

- Dozer tractor that would be used to spread the materials evenly on the slopes, and push the dried materials to the loadout area.
- Rubber tired loader used to load out the dried biosolids.
- Hauling trucks to transport the biosolids to the composting area or site slope areas, or to off-site use points.
- Water trucks for access road dust control.
- Pumps to handle slope stormwater runoff.

Schedule

The schedule will be set by the rate of drying that occurs on the slopes. It is preferable to spread multiple layers of materials on the slopes. The addition of soils and other solidified wastes will depend on the availability of those materials. The removal schedule will be determined when the biosolids moisture content has reached the desired levels for subsequent marketing of the material or for composting. Also, the scheduling of the dried biosolids removal may be related to preparing the slope for the upcoming wet weather season.

9. PROTECTION OF LANDFILL CAP &ANNUAL MAINTENANCE ACTIVITIES

Description of Caps

The Class II site final cap is composed of compacted soil. The soil profile is composed of 2 feet of foundation soil, 1 foot of compacted clay and 1 foot of vegetative soil. The clay soil forms the moisture barrier layer that prevents moisture infiltration into the buried landfilled wastes.

The HWMF final cap is more unique, comprised of a composite soil and geomembrane structure. The vegetative soil layer is 18 inches thick which will permit incorporation of the dried biosolids in the final cap.

Potential Impacts To Be Avoided From Biosolids Handling Procedures

Infiltration of moisture into cap – The biosolids processing areas are on the sloping hillsides of the Class II landfill. The standard landfill final cap on these slopes is a 4-foot thickness of compacted soil. One foot of compacted soil overlies the 1-foot thick clay barrier layer. A 2-foot thick foundation soil layer underlies the clay layer. One of the prime purposes of the final cap is to minimize the infiltration of moisture into the cap.

Deep infiltration through the clay layer should not occur on the slope. The high moisture biosolids would wet the top few inches of the topmost soil layer as the liquid was wicked down from the biosolids materials into the soil. However, as the biosolids dried, the top of the soil layer will also dry.

Since, the repetitive spreading operation is planned to achieve substantial drying of the biosolids before the next application, it will be several weeks before the next application is made. This will allow the soil to partially dry.

Experience has been gained in evaluating the cap moisture control function. In 1999 test holes were made into the Class II Site final cap to determine moisture penetration from the normal rainfall. This was conducted as part of monitoring of the cap to obtain information in HWMF cap design evaluation.

In the October 1998 tests, the in-situ dry vegetative soil was very firm and non-friable. Digging the holes required substantial effort to hand dig down through the 1-foot thickness. The maximum depth where the roots were noted was 9 inches in the 1996 final cap area.

The rooting depth range of the other test holes was 3 to 6 inches. The excavations were made in areas of the slope where the plants were growing as high as 5 or 6 feet. However, in digging the test holes, when these larger height plants were removed such as from the center of the hole, the primary roots generally did not extend below 2 or 3 inches. The vegetative soil was very dry, whereas the top of the clay barrier layer was moist. It was easy to stick a screwdriver several inches into the clay, as compared to it would not penetrate into the overlying vegetative soil. However, no roots were noted on top or in the top few inches of the clay soil layer even though soil moisture was present.

These results show the limited infiltration potential through the clay cap and the effects of the shallow-rooted grasses and weedy plants acting to remove the moisture.

Additional information is available from the ongoing Potrero Hills Landfill Engineered Alternative Final Cap investigation. At that landfill, a test area on the 3:1 final cap slope is instrumented with moisture sensors that track the moisture profile of a 60-inch thickness or depth of the soil cap. Figure 3H-2 portrays data from the Potrero Hills Landfill study and is included here for reference.

The graph shows at the beginning of the wet season that the moisture content of the surface soils immediately increases with the onset of rainfall. Several weeks after more rainfall, the 12” depth soil layer shows a moisture increase. However, even after 5 months of wet weather, the 18” depth soil layer shows no impact of rainfall infiltration. The data collection and observation

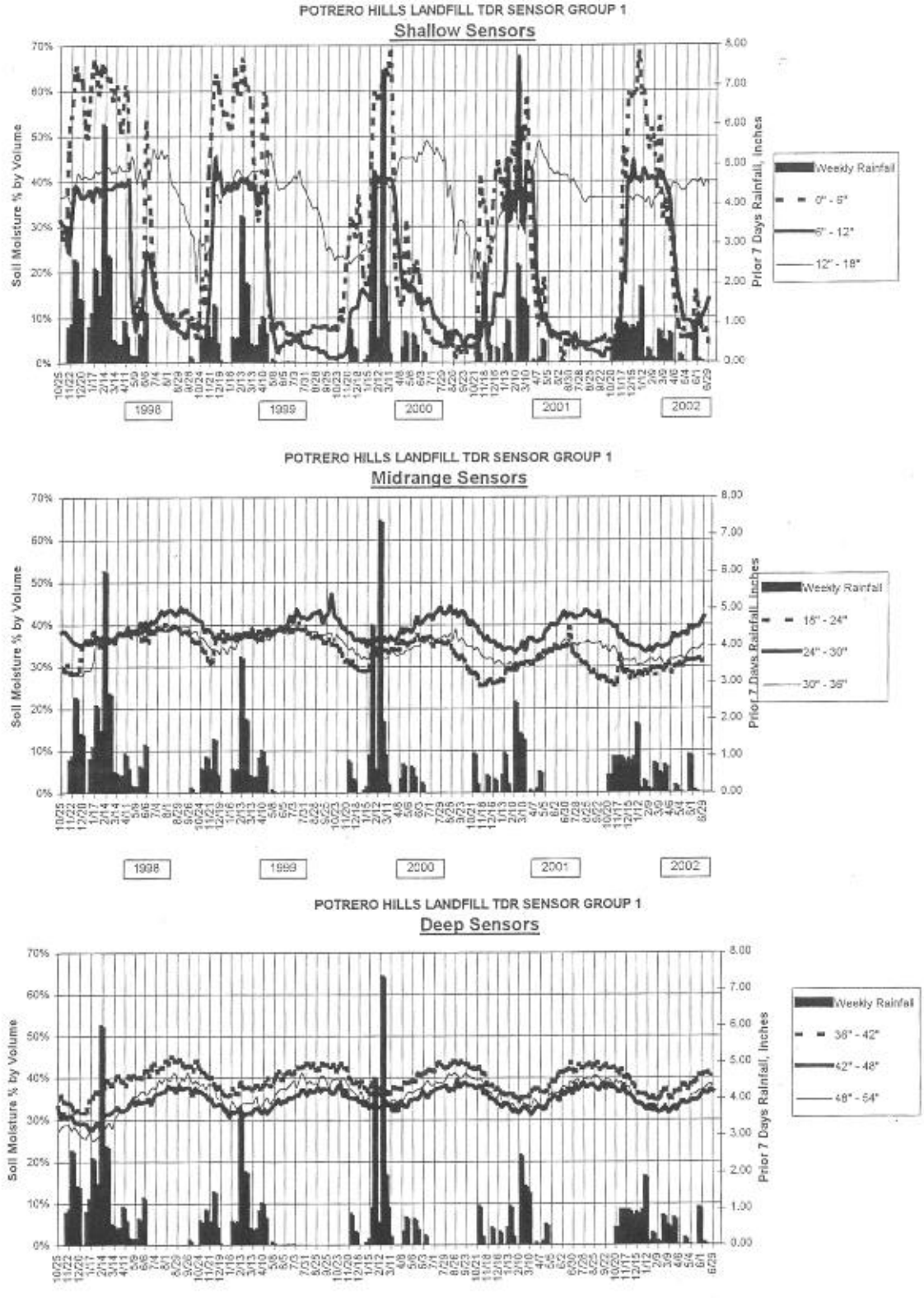


Figure 3H-2 Soil Moisture Trends 1997-2002

shows that the deeper soils (18” to 60” depth) remain with relatively unchanged moisture levels after 5 years of annual rainfall.

At the WCL, even with continuous use of the eastern and southern slopes for biosolids processing, a similar wetting and drying cycle is expected, since the periods between biosolids applications will allow for loss of some of the extra moisture added by the biosolids during the dry weather period.

During the initial years of the biosolids applications at the WCL, soil moisture monitoring is planned to gain knowledge of the annual soil moisture pattern in the cap profile.

Removal of Final Cap Soil – The periodic movement of tractors on the final cap could threaten the cap integrity if proper operation practices are not followed. Prior to use of the eastern and southern slope areas for repetitive placement and removal of the biosolids, additional soil would be placed on the slopes. This will provide a buffer on top of the existing final cap that now has been constructed.

Steps will be taken to include a marker layer similar to those used in the buffer layer underlying the resource recovery operations located on the landfill central plateau.

Creation of nuisances – Proper operational techniques will be developed and followed to avoid creation of nuisance odors and water quality impacts. These measures are described elsewhere in this Appendix in Section 7 (Runoff Control) and Section 10 (Other Environmental and Operational Factors).

Monitoring and Maintenance

Periodically in May-June, moisture content sampling of biosolids layers and the final cap vegetative soil layer will be conducted by driving 1” or 2” diameter soil sampling tubes extending down to the

top of the clay barrier layer. The holes will be immediately backfilled with bentonite chips to reseal the hole. Seed mix will planted at the top of hole if appropriate (if no new biosolids application is anticipated before next season). The moisture content of the soil samples will be determined using proper ASTM methods. The results will be recorded and reported.

Annually, the depth of the buffer layer in the biosolids processing areas will be determined to guard against removal of the cap soil as the biosolids are graded across the hillside or removed from the slope. This involves shallow test holes made to measure the soil thickness existing above the marker layer.

10. OTHER ENVIRONMENTAL AND OPERATIONAL FACTORS

Comparison With Existing Drying Lagoons

The biosolids that would be processed on the WCL slopes primarily would include those that are now lagoon-dried in the WCWD lagoons. A number of these ponds are adjacent to the Richmond Parkway. The existing Bay Trail bike path passes along the east side of these ponds (along the west side of the Parkway). A new trail linking the Wildcat Creek and WCL public access trails may be created along the west side of the POTW, and hence adjacent to the existing western ponds.

The locations of the WCL biosolids spreading slopes are much more remote from public thoroughfares. An exception is the eastern slope area if the Waste Recycling Center is located in Area A. The access roadway to the WRC facility located there would pass along the base of the eastern slope area. Fencing would be in place to restrict public access to the biosolids processing area.

Public Health Aspects

The biosolids to be applied, composted or otherwise utilized at the WCL will be limited those that have been adequately processed through the normal POTW biosolids digestion processes. These have reduced health impact significance as compared to raw biosolids sludge. However, the handling of these materials at the WCL must do with caution and effective notification of possibly affected parties.

Only employees who have been trained in the proper biosolids handling procedures, conditions and operations to be avoided, and good manner of health protection will be allowed to participate in the biosolids-handling program at the WCL. Proper protective equipment (clothing, masks, goggles, etc.) will be provided. Follow-up observation of working practices and re-training will be conducted quarterly to assure continuous respect for the public health aspects of this operation are being routinely followed. These training sessions will also allow feedback from all participants regarding improvements that can be made in the handling process or changes in the manner of monitoring and controlling the operation.

The biosolids will not be placed in any area where the public can have contact with the materials. This includes the public access trail area of the western and northern landfill slopes. Biosolids placed in those areas will be done only when the areas are closed and fenced off to prevent public access, and when the materials will be disked into the shallow soil mantel of the landfill cover. At the edges of the biosolids application area, signs will be posted indicating the boundaries of the area and warning unauthorized persons to not enter the area.

The spraying of the biosolids has the potential to cause wind drift of the biosolids liquid in mist or fine droplets form to adjacent areas. The operators of the spray equipment will be thoroughly trained to watch and assure that the materials are applied to the intended surface. Through experience, limits will be established for various wind speeds that will involve establishing setback distances from adjacent areas or outright halting of spraying. The spraying pattern will be done to avoid the biosolids from being blown back onto the operator or the equipment. The intent is to spray in the downward wind direction.

The annual report will contain a summary of the public health aspects of the preceding year's operation including a review of the health protection procedures that were employed and corrective measures that were or need to be taken.

Aesthetics

Persons traveling down the Richmond Parkway and the Bay Trail located along the Parkway can view the WCL.

More distant views occur from the hillside residential areas to the east and south. When the Public Access Trail is opened around the eastern and southern perimeters of the WCL property, that will create the nearest observation point to the biosolids processing area. The nearest distance ranges from 300 to 900 feet. Figure 3-7 in Chapter 3 shows the trail locations envisioned on the landfill. When dried biosolids are placed on the western and northern final cap slopes, portions of the Trail will need to be taken out of service for the 4 or 6 week period while the temporary fencing is installed and when the materials are being spread on the hillside. The areas nearest the trail will be mulched with straw to return the area to the seasonal brown and tan color of the adjacent hillside vegetation.

The appearance from offsite areas and the Public Access Trail will entail observation of the equipment periodically operating on the slope to spread out the materials. Also, periodically the processed material removal activities will be seen. These areas are sufficiently distant from the trail such that the appearance should not be negative, other than the trail user may have wished to have a recreational hiking or biking scene with no commercial enterprise visible. The noise should not be distinguishable over the ambient noise of the nearby refinery operations.

Use of the eastern slope spreading area, adjacent to the access road leading to the Waste Recycling Center if it is located in Area A, should not be aesthetically displeasing. The operation would resemble constructions projects that have been common at the landfill.

Litter Control Measures

The litter control requirements of LUP Section 24 and CUP Section 22 would apply to this operation. Due to the biosolids and soil materials being handled, little litter should be created. In addition to those methods described in the FDIP report, no specific litter control measures would be needed.

Odors

The odor control requirements of LUP Section 23 and CUP Section 20 would apply to this operation. No nuisance odors are expected since the thickness of the biosolids layers will be maintained such that anaerobic conditions should not occur. The musty odor of the biosolids may be present at times similar to that which occurs when the existing drying lagoons are plowed.

Transportation

Pipeline and Storage Tank – The transport pipeline from the pumping station located at the POTW will be placed underground passing through the POTW, through the WCL front entrance area and through the WCL Area A.

Temporarily the pipeline will be placed on the ground surface where it runs up the grade to the edge of the central plateau. Later this pipeline will be placed underground after the initial major settlement of the landfill has occurred. A 20,000-gallon tank may be placed on the central plateau to serve as a filling station for the tank truck spraying operation.

Inbound Trucks – The number of trucks depends upon the amount of POTW solar drying lagoons continued in service by the WCWD. If the biosolids are pumped to the WCL drying area, or to the storage tank then few numbers of trucks would be used annually. As now occurs, the dried biosolids materials contained in the remaining lagoons in August and September will be hauled out over a several week period and placed on the final capped slopes, or possibly composted. Currently about 800 truckloads are involved annually over about a one month duration.

Outbound Trucks – Periodically trucks will be used to transport the finished dried biosolids or soil/biosolids mix to the point of use off-site.

Water Supply

Water is not required for the biosolids processing operation, except for the haul roads. Dust control in the nearby area and on access roads will be accomplished by spraying water with the site water trucks per existing permit requirements. Drinking water for operations personnel is supplied via bottled water.

Pooling of Biosolids Liquids

Periodic smooth grading of the slopes should prevent pooling of biosolids liquids on the slopes. This would be done by a dozer back-blading the slope area.

Energy Consumption

Comparison with Filter Press and Centrifuge Alternatives – The solar and air drying of the biosolids on the slope is much less energy consumptive compared to the use of a filter press or centrifuge which require significant amount of electricity to operate. Some electrical power would be consumed in pumping the biosolids up to the WCL spreading areas, but it is expected to be only a small percentage of the mechanical dewatering energy needs.

Trucking to WCL areas – If a portion of the existing WCWD biosolids drying lagoons remained in operation, energy would be expended by the tractor plowing and tracking through the lagoons to dry the material, and the loadout and truck transport of the biosolids to the WCL. This removal effort would be less than for hauling the biosolids cake from the Filter Press or Centrifuge.

The lower moisture content lagoon dried materials would constitute less volume to be hauled, thus requiring fewer truck trips.

Handling of biosolids materials on slopes – The current limited information indicates that the amount of energy consumed in placing the materials on the final capped slopes as soil amendment would be approximately equal to the existing WCWD lagoon drying program. Handling the mechanical dewatered biosolids on the slopes to further dry them and combine with soil for recovery might be more energy intensive due to the need to spread them on the slopes with a tractor. However, the liquid biosolids spread at the top of the slopes may require multiple regrading of the layers on the slope to even the thickness of the biosolids. Spraying of the liquid biosolids from a tank truck may require the periodic tracking of the slope vegetation by a bulldozer to create a more uniform biosolids application. Mowing of the green slope vegetation may be necessary.

Fire Control

Due to the thin layer depth and low fire potential of the biosolids, no special measures are anticipated to occur. Compliance will be maintained with the FDIP fire control requirements (e.g. control of wildfires). If lush vegetation growth occurs due to the increased moisture and nutrient availability, at the end of the application season when the foliage dries and browns off, a bulldozer or mower may need to reduce the depth of the vegetation as a fire prevention measure.

Equipment Servicing Area

The equipment would be serviced as part of the BMPC equipment-servicing program. The WCCSL equipment maintenance personnel will accomplish the routine maintenance.

Dust Control

A water truck would be used to periodically spray the site access roads for dust control per existing permits.

Site Security

The primary security is the WCCSL exterior fence and gate located at the end of Parr Blvd. Persons traveling on the access road must pass the WCCSL scale house. The general public using the WCCSL would be excluded from the biosolids processing operation. Fencing would be installed around the spreading areas used annually on the western and northern slopes containing the Public Access Trail. The biosolids storage tank and the tank truck filling area would be fenced and access would be limited to authorized WCL personnel.

Residuals Management (LUP Section 11.4 and CUP Section 9.3)

Certain excess vegetation material may be created seasonally, such as clearing plant growth materials from the slope prior to beginning the spreading operation. These materials can be disked into the slope, left in a crushed condition on the slope, or collected and delivered to the composting facility.

Contingencies

WCCSL, Inc. has established response programs for the cases of accidents, fires, and equipment malfunction. The site personnel are equipped with radios to maintain contact with the WCCSL office. A list of emergency contact numbers is maintained and the site has a Fire Control Plan and a Hazardous Materials Management Plan. No materials are anticipated to be used in the biosolids processing that would require identification in the WCCSL MSDS log and the

Hazardous Materials Management Plan. One contingency plan is to provide pooling areas along the ditches on the south slope roads for the event where the biosolids are channeled down the slope and enter the ditch. Daily observation would be made of each channel. A monitoring log will be maintained to certify that the observations are being accomplished. The plan will anticipate that a tractor may be required on short notice to build a temporary berm to isolate such runoff (such as building up the bottom edge berm). Training of operators will be conducted annually to alert them of this possible scenario and to practice the control measures. Observations will be made of specific locations on the slopes where runoff periodically occurs, and either the biosolids applications will be reduced, or grading will be performed to achieve better areal coverage of the slope.

11. MONITORING & REPORTING

The following is a listing of the content of the monitoring and reporting program envisioned for the biosolids management program. The information will be tabulated monthly and provided to the agencies quarterly or upon request.

Quantities Handled – As applicable, specify the tons or gallons by percent moisture that are applied to the slopes. The composting program will identify the amount of biosolids that are composted.

Location of Processing Area – Indicate the area used per month (location and area size) coupled with the amount of material applied per area.

Schedule of Processing Per Area – Provide a summary of the processing time for the various application areas.

Quantities Removed – Indicate the amount of material removed from the various processing areas.

Runoff Monitoring -- monitor the amount and character of the stormwater runoff from the various processing areas

Soil Moisture Monitoring – Monitor the dept of moisture penetration due to biosolids spreading.

Public Comments – Provide a summary of comments received from the public

Reporting of Critical Events – The following will be reported:

- Odor nuisance complaints
- Lack of containment of biosolids
- Grading corrections

Biosolids Buildup In Vegetative Layer Of Cap – monitor the thickness of biosolids stored on the various processing areas

Thickness of Cap Remaining Underlying Processing Areas - monitor the thickness of the vegetative soil layer above the clay barrier layer.

A report will be prepared and submitted to the appropriate agencies on the schedule that is established in the WCL permitting process. The report will contain descriptions of the above items for the monitoring period. Tables and maps will be included as applicable.

12. FACILITY CLEANUP AND CLOSURE ACTIVITIES

Schedule

There is no current estimate of when the biosolids spreading and application management method would be closed out if this biosolids management technique at the WCL is successful. The POTW will remain at its present location for the foreseeable future. Biosolids generation will continue at the POTW requiring disposal or recovery. This Section is contained in the Appendix to meet information needs and to interface with the WCL Class II Site Postclosure Plan.

Site Cleanup

For site cleanup, that thickness of the final biosolids layer that is not desirable to leave on the slope as soil amendment, will be removed. Also, any pipes that are not needed for other purposes will be removed. The remaining biosolids will be mixed into the underlying materials and the plant seeding will occur in October.

Postclosure Site Monitoring and Maintenance

For the period specified, the normal WCL Postclosure Plan monitoring and maintenance activities will be conducted similar to actions taken for the other final slope areas.